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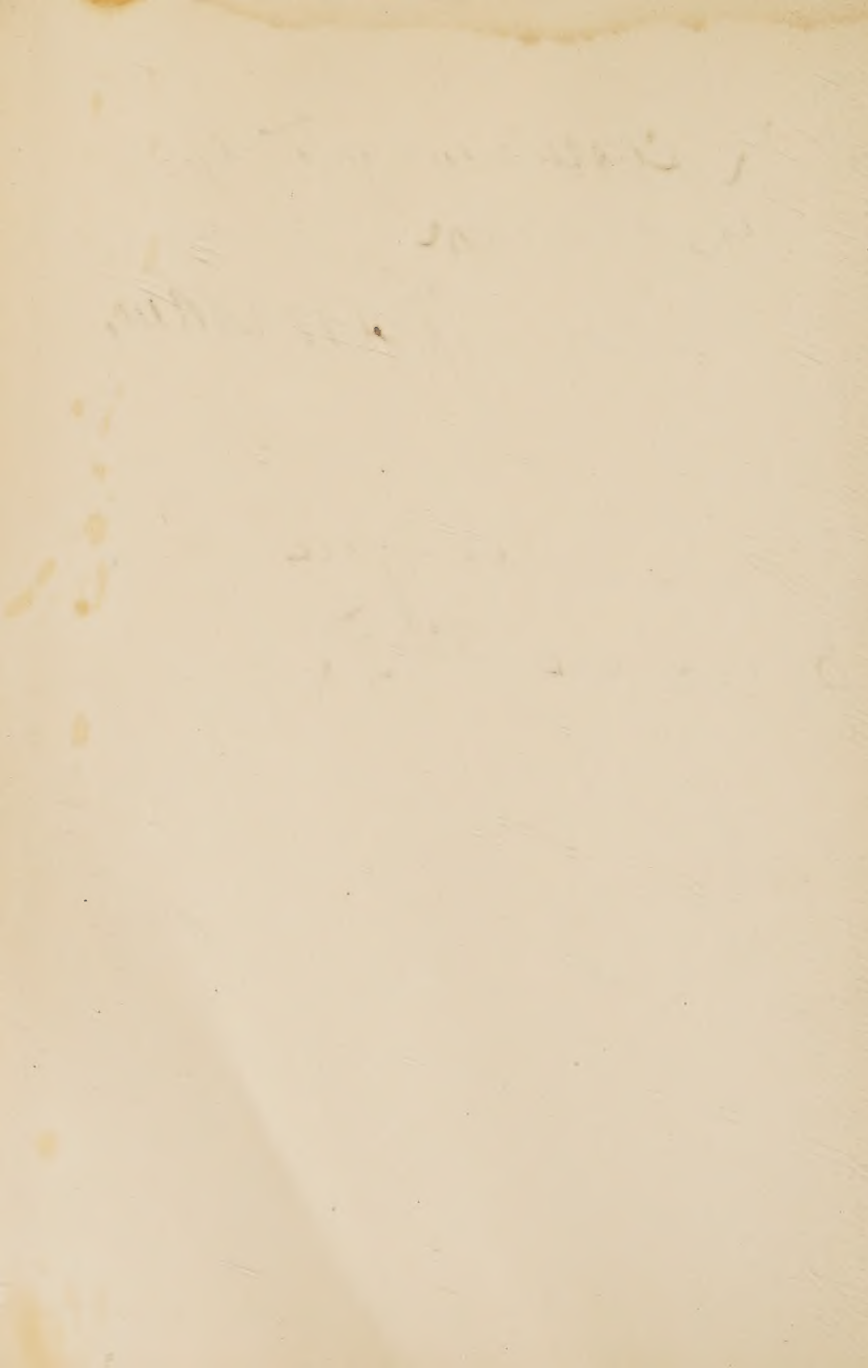
Venereal and Sexual Diseases


HACKETT AND ARONSTAM

With compliments of
to Auburn

W. Ainslie,

To my colleague Jos.
Brisson M.D.





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A Manual of Venereal and Sexual Diseases



BY

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To our esteemed colleague,
PROF. O. LASSAR, M.D.,
this manual is dedicated
by the authors.

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PREFACE.

In the present volume the authors have endeavored to discard all theoretical knowledge pertaining to these subjects, and have given in as brief and concise a manner as possible the practical side of these branches of medicine. All modern appliances, used in the treatment of venereal diseases, have been amply discussed and the methods adopted for the treatment of the various maladies described in the subsequent pages, are those which have been recommended by up-to-date Syphilographers.

Part IV. treats of the functional disorders of the male generative organs, together with the most important sexual psychopathies.

The authors venture to hope that this work may prove useful to the student and the busy practitioner. If these hopes be realized, then they shall be amply repaid for the task involved in preparing this manual.

WM. A. HACKETT,
N. E. ARONSTAM.

Detroit, September, 1901.

PRELIMINARY REMARKS.

Venereal (from Venus—the Roman goddess of love) Diseases, or those obtained by sexual intercourse are three in number: (1) Gonorrhea; (2) Chancroid; (3) Syphilis.

When more than one of these are present in the same individual at the same time it is called *Mixed Infection*.

Gonorrhea, also called Specific Urethritis, or Blennorrhœa, is an acute infectious process attacking most frequently the mucous membrane of the urethra and the structures in anatomical relation with it. The mucous membrane of the eye, the mouth, the anus and the rectum may also be the seat of the process. It is the most common and most venereal of the three diseases, and not infrequently becomes constitutional.

Chancroid or venereal ulcer is a non-specific, non-systemic local disorder.

Syphilis is an acute infectious disease, affecting the constitution, and producing general intoxication from toxins; and capable of bringing about immunity, either directly or indirectly.

PART I.

Gonorrhœa and Its Complications.

CHAPTER I.

ACUTE SPECIFIC URETHRITIS OR GONORRHEA.

I. ACUTE ANTERIOR URETHRITIS.

ETIOLOGY.—Irritating pus or secretion from one person to another, due to a microorganism. Neisser discovered the “gonococcus” in 1879, but this cannot be found in all cases of urethritis. Clinically, there are cases just as severe and with as many complications in which no gonococcus is found. A man may contract a urethritis from the secretions of a lacerated cervix and perineum, or the secretions from the uterus and vulvovaginal discharges due to uncleanness. The woman may be virtuous, but suffer from a diseased uterus, cervix, etc., which gives rise to an irritating discharge. Then menstrual secretion is very acrid in character and often produces severe urethritis in the male. So we see there is still much to be learned about the etiology of urethritis.

The gonococcus of Neisser is a diplococcus. The gonococci are arranged in pairs, each half being kidney-shaped in appearance, with their inner borders in apposition. The entire coccus resembles a coffee-bean. They grow and increase in numbers very rapidly, each pair splitting into four, and are never arranged in chains. They are found upon the epithelia, within the pus cells, and among and between these cells.

Staining.—After cleansing the glans penis, pass a sterilized platinum loop into the urethra to obtain the secretion for examination. Spread it in a thin layer on a clean glass slide. Dry in the air. Pass through the flame of an alcohol lamp. Add a drop of dilute watery solution of methyl blue and leave on for two or three minutes; then wash off with distilled water. Dry and mount in Canada balsam.

Infection may be direct or indirect. (1) *Direct Infection:* The gonorrheal pus is transferred from the genitals of one person to those of another during coitus. This is the usual and common mode of infection. (2) *Mediate infection* occurs when instruments, towels, dressings, or the fingers have been contaminated with the pus and then brought in contact with the meatus or some mucous membrane.

The Course of the Gonococcus.—They increase rapidly in numbers when deposited on the superficial layer of the urethra, and give rise to a slight serous discharge, which appears at the meatus. This discharge consists of serum and epithelial cells, upon and between which are the gonococci. In twenty-four to thirty-six hours the gonococci penetrate the cement substance between the epithelial cells and pass downward toward the subepithelial connective tissue layer. This stage is marked by a purulent discharge, which destroys

and throws off the urethral epithelium, thus giving free access to further gonococci invasion. The purulent discharge contains pus cells, serum and gonococci.

DIAGNOSIS.—The diagnosis between specific and non-specific forms will be dealt with later. Acute specific urethritis is easily diagnosed by the redness and swelling of the meatus, painful urination, the purulent urethral discharge, the period of incubation, and the presence of the gonococci. *Chancre of the meatus* or within the urethra gives rise to a slight serous discharge, and the induration about the lesion can easily be detected. *Chancroids of the meatus* cause a purulent discharge, rusty-brown in color and auto-inoculable. In *Balano-posthitis* due to herpes, papillomata, etc., no urethral discharge can be detected.

PROGNOSIS.—Specific urethritis is no longer regarded as a trivial affection; modern investigations have proven that it is often a serious systemic disease. It is more obstinate about the age of puberty, in those who are overworked and in scrofulous, anemic or neurotic individuals; complications are apt to occur in almost any case, and therefore it should be considered a grave and far-reaching disorder. We cannot promise a cure in four to six weeks, as some surgeons do, but must give a guarded prognosis, especially so in posterior urethritis.

SYMPTOMS.—These appear from one to six days after infection. Cases coming on late are not so virulent as those coming on in a few hours. The first signs are: (1) Slight heat or tickling in the end of the penis; (2) the urethral orifice is redder than normal and has a slight discharge; (3) the mucous membrane bulges out through the orifice; (4) a burning sensation on urination, caused by the acidity of the urine distending the inflamed urethra. The congestive stage lasts four or five days. Often there is no swelling of the glans penis. During the early congestive stage the discharge is slight and may be tinged with blood, which is a sign of resolution. A greenish-yellow discharge appears afterwards and swelling subsides. The patient may complain of pain in the loins, back and legs, with loss of appetite and vomiting. The skin may be hot and dry, with the temperature rising to 102° or 104° F., with restlessness. Painful urination is frequent, and the stream may be narrow and shoot out in different directions. If acute prostatitis be present, there will be constipation, pain most severe during and after passing urine, and sometimes retention of urine.

Chordee is most marked during the congestive stage, and is due to the bow-string connection of the corpus spongiosum and urethra. Erections occur often and are very painful, as the urethra,

which is already extended, is put on the stretch. The penis becomes bow-shaped.

The second stage follows the acute congestion and might be termed the suppurative stage, as a thick yellowish or greenish-yellow discharge occurs, lasting one to three weeks. Painful urination is not so great now. During this stage the disease extends backward and occasionally reaches the prostate.

The stage of decline now follows, during which the pus becomes thin and whitish as in the congestive stage. The length of this stage depends chiefly upon the patient's conduct. The first attack is usually the worst, and one attack is said to predispose to another. Sutton says that London policemen often have it nine times before being pensioned. The disease has a tendency to extend backward, but in mild cases is limited to the anterior two or three inches of the urethra, and is then termed *anterior urethritis*. When the process invades the urethra beyond the site of the triangular ligament, it is called *posterior urethritis*.

TREATMENT OF ACUTE ANTERIOR URETHRITIS.
—This is often unsatisfactory, as the same treatment is not beneficial in all cases. The abortive treatment is not recommended, as any local application which will abort it after twenty-four hours will injure the urethra. Some of the remedies used to abort it are carbolic acid (1 in 20), silver

nitrate (20 grains to the ounce), potassium permanganate (one per cent), protargol, argonin, peroxid of hydrogen and hydrozone. It is better in the early stage to treat on general principles, viz.: Rest in bed if possible, or the use of a snugly-fitting suspensory bandage; the penis should be kept very clean. The bowels should be relaxed by the use of small doses of calomel or pil. cathartic co. If the patient goes to bed, the diet should be reduced about one-half, and should consist of water, bread, milk, eggs and light puddings. No alcohol should be allowed in any form, and no vinegar, mustard, pepper or spiced food. The use of tobacco should be prohibited; all stimulants must be stopped, and instead of strong tea, coffee and cocoa, he should drink freely of water and lemonade. Mental and sexual excitement must be avoided. The acidity of the urine may be reduced by liquor potassæ or potassium acetate. Heat favors the growth of germs, hence the cold coil around the penis will have a good effect.

If the patient be in bed, he should not be kept very warm. He should be warned of the danger of infecting the eyes, and the gravity of such an accident. The best dressing for the penis is absorbent gauze, a piece about four inches square with a slit cut in the center, through which the glans is passed until the gauze is well behind the corona. The foreskin is then drawn forward, thus

causing the free end of the gauze to protrude beyond the preputial orifice. This dressing allows the pus to drain freely from the meatus and keeps it from coming in contact with the prepuce and glans. If the prepuce be very short, the glans may be wrapped lightly in absorbent gauze. The dressing should be burned as soon as removed, and the hands washed to prevent infection.

To render the urine antiseptic the following is very useful in the early stages:

Saloldr. 1

Boric aciddr. 1

M. Div. in capsulis No. xii. Sig.: One four times a day.

This may be given for four or five days, but should be stopped as soon as the urine becomes dark or smoky. To render the urine alkaline, alkaline mineral waters may be given freely, or one of the following:

Potassii bicarbonatisdr. 3

Tinct. hyoscyamidr. 2

Aquæ, q. s. ad.....oz. 4

M. Sig.: A tablespoonful in water after meals.

Ext. pichi fl.....dr. 3

Potassii acetatisoz. 1

Spts. æther. nitros.....dr. 2

Tinct. hyoscyamioz. 1

Elixir aurantii, q. s. ad.....oz. 8

M. Sig.: A tablespoonful in water after meals.

For chordee and painful erections the patient should empty the bladder before retiring and sleep on his side on a hard mattress, with light covering. When awakened by an erection, cold applications should be made to the penis. Cocain solution (one per cent) may be injected into the urethra and retained for several minutes. In severe cases a few drops of tincture of opium may be given four or five times a day, or a large dose of sodium bromid or monobromid of camphor at bedtime. It is sometimes necessary to resort to suppositories of opium or morphin.

Injections.—Injections should not be used until the acute symptoms begin to subside, which is about the end of the second week as a rule. The injections should be bland and non-irritating. The patient should be instructed in the use of the syringe, which should have a blunt conical tip and hold about four drams. (See figures 1 and 2.) After urinating, he gently inserts the nozzle of the filled syringe into the meatus, with lips pressed together against the syringe. The solution is thrown in slowly until a feeling of distension or discomfort occurs, when it is allowed to escape, or is kept in for a few minutes. This should be done three times a day. Hot boric acid solution may be used first. The following are useful solutions:

Zinci sulphatisgr. 6
 Ext. hydrastis, fl.....dr. 4
 Glycerindr. 4
 Aquæ, q. s. ad.....oz. 6

Or—

Zinci sulphatis.....gr. 10—12
 Plumbi acetatis.....gr. 6—12
 Ext. opii aq.....dr. 2
 Aquæ, q. s. ad.....oz. 6

Or—

Protargolgr. 25
 Aquæad. oz. 6

Or—

Potassii permanganatis....gr. $\frac{1}{4}$ —2
 Aquæ, q. s. ad.....oz. 6

Or—

Hydrozonedr. 3
 Aquæ, q. s. ad.....oz. 4

Great benefit will result from deep injections thrown into the bulb by the physician. A French soft catheter, No. 12 (see Fig. 3), lubricated with glycerin, may be used, with four or eight ounces of warm medicated fluid. During the latter part of the acute stage, capsules of copaiba or copaiba and cubebs and methylene blue, or pure yellow santal oil, five or ten drops in a capsule, one and a half hours after meals, are very useful. In hospital practice these are too expensive, and Lafayette mixture is given. The formula of it is as follows:

| | |
|---------------------------|----|
| Bals. copaibæ.....oz. | 1 |
| Liq. potassæ.....dr. | 2 |
| Ext. glycyrrhizæ.....dr. | 4 |
| Sp. æther. nitros.....oz. | 1 |
| Syr. acaciæ.....oz. | 6 |
| Ol. gaultheriæ.....gtt. | 16 |

M. Sig. One or two drams after meals.

When the discharge becomes sticky in character, it is well to stop the use of these remedies, as they may delay the cure by overstimulation of the urethra, and give instead a mild alkaline diuretic. If the treatment has been successful there is only a trifling urethral discharge in the morning, with gonorrhœal shreds and perhaps a little pus in the urine, which soon disappears.

II. ACUTE POSTERIOR URETHRITIS.

Thompson's two glass test assists in telling whether the posterior urethra be involved or not. The patient should have a considerable amount of urine in the bladder and pass an equal amount of urine in each glass. In acute anterior gonorrhœa, the urine voided in the first cylinder or glass will be cloudy from the pus washed out of anterior urethra. That passed in the second glass will be transparent as it consists of clear urine from the bladder, passed over a clean urethra. If posterior gonorrhœa exist, pus passes backwards into the bladder, rendering all the urine cloudy.



Fig. 1.



Fig. 2.



Fig. 3.

Figs. 1-2. Urethral Syringes.

Fig. 3. Catheter.

Fig. 4. Subpreputial Syringe.



Fig. 4.

SYMPTOMS.—In the posterior form there is an increased frequency in urination, with inability to hold the urine when the desire comes on. This is followed by vesical tenesmus and sometimes by blood from the prostatic urethra, the congested vessels of the prostate having ruptured. The discharge from the urethra is greatly diminished. The patient complains of intense pain in the perineum and rectum, attended at times by painful nocturnal emissions. Spasmodic contractions of the bulb may produce retention of urine at any time. These symptoms may be either mild or very severe. The duration of the attack depends chiefly upon the treatment and the conduct of the patient, lasting from one to six weeks.

On palpation per rectum the prostate is found to be enlarged, hot and tender.

TREATMENT OF ACUTE POSTERIOR GONORRHEA.
—It is better to stop the use of injections and instruments and give alkaline mineral waters or some preparation like this:

| | |
|-----------------------------|---------------|
| Potassii bicarb.oz. | $\frac{1}{2}$ |
| Tinct. hyoscyamusdr. | 3 |
| Ext. kava-kava, fl.dr. | 3 |
| Aquæ, q. s. ad.oz. | 4 |

M. Sig. A teaspoonful in water two hours after meals and at bedtime.

A hot water bag placed over bladder and perineum will give relief as well as a sitz bath. If

retention of urine occur, pass a small soft sterilized rubber catheter. Injections of cocain hydrochlorate, 1 per cent, if the urethra be very sensitive, may be resorted to. Hot rectal injections containing a small quantity of tincture of opium are often useful, if the pain in the prostate is severe. In persistent insomnia, give sulfonal in 10 grain doses in hot milk. Codein sulphate may be added if necessary.

CHAPTER II.

COMPLICATIONS OF ACUTE SPECIFIC URETHRITIS.

In calling the attention of the reader to this subject, it is to try to impress upon him how very serious a disease ordinary gonorrhea is and how far-reaching it is in its effects. In a great majority of cases it is a constitutional disease and more to be dreaded than syphilis. Ricord was not far astray when he said: "Anybody can tell when gonorrhea begins, but God alone knows when it will end." Modern methods of treatment have not modified this dictum to any extent. Why not regard specific urethritis just as much a constitutional disease as typhoid fever? In both diseases there is infection, ulceration, absorption of the germ peculiar to each or absorptions of toxins produced by the germs, glandular involvement, pain in the parts affected and severe backache resembling lumbago, often high temperature and general malaise with constipation. In a majority of carefully treated cases of gonorrhea, the discharge ceases in from three to six weeks with *apparently* complete recovery. Typhoid fever lasts about the same length of time. Unfortunately in gonorrhea there is often a tendency to chronicity, despite judicious treatment, the discharge becoming thinner and more watery, and persisting for an indefinite period. This symptom or complication is commonly called gleet.

During the past year we have kept a record of one hundred successive cases in males which were treated in our clinic and privately. Of these seventy-four were either acute or subacute cases, and twenty-six were chronic. The following were the complications:

| | |
|---|-------------|
| Adenitis | 15 per cent |
| Acute prostatitis..... | 9 per cent |
| Stricture | 9 per cent |
| Epididymitis and orchitis | 8 per cent |
| Balanoposthitis, requir- ing circumcision..... | 6 per cent |
| Arthritis | 5 per cent |
| Cystitis | 3 per cent |
| Meningitis | 1 per cent |
| Appendicitis | 1 per cent |
| Some other constitu- tional disturbances .. | 14 per cent |

Total 71 per cent

The other twenty-nine acute cases seemed to recover without any complications, the average length of the disease being four weeks.

In considering the complications the chief practical points will be given. An exhaustive discussion of the subject would require more space than it is practicable to devote to them in a single chapter. The danger of complications is dependent upon the severity of the inflammation and the

degree and frequency with which the canal is mechanically disturbed in severe cases. The amount of exercise indulged in is an important factor. A gonorrheal patient is a sick man and should be in bed. As regards the etiology of the complications, the gonococcus is not the principal factor. Urethritis is a typically mixed infection; many of its complications are not immediately dependent upon the gonococcus. The chief complications are: (1) Severe chordee and hemorrhage; (2) folliculitis; (3) periurethral phlegmon; (4) acute prostatitis; (5) retention of urine from stricture; (6) cowperitis; (7) cystitis; (8) epididymitis and orchitis; (9) seminal vesiculitis; (10) lymphangitis; (11) papillomata; (12) balanitis and balanoposthitis; (13) adenitis; (14) gonorrheal arthritis; (15) gonorrheal neurones; (16) gonorrheal stomatitis; (17) gonorrheal conjunctivitis; (18) gonorrheal ophthalmia.

CHORDEE AND HEMORRHAGE.

Chordee is a frequent complication and develops when the inflammation is at its greatest intensity, at which time the plastic exudate is most marked. It causes inconvenience during erection and hence pain is usually worse at night. The chief dangers are rupture and hemorrhage with subsequent stricture or perhaps abscess. The treatment of

this complication has been mentioned under acute anterior urethritis.

FOLLICULITIS.

This may occur at any time during the acute attack and sometimes later. Small, tender, round or oval swellings about the size of a pea appear along the floor of the canal. The condition is due to infection of the urethral follicles and sinuses of Morgagni, resulting in small retention-cysts, containing pus and mucus. They usually discharge into the urethra but may be the source of recurrent urethral infection.

TREATMENT.—Squeeze the pus out and inject pure carbolic acid into the follicle by means of a hypodermic syringe. If this fails, the small abscess should be opened, curetted and the surface touched with pure carbolic acid.

PERIURETHRAL PHLEGMON.

Periurethral phlegmon is a frequent complication and is an inflammation of the periurethral cellular tissue. Phlegmonous inflammation usually ends in suppuration, but resolution may occur without it. The favorite seat of phlegmon is the floor of the fossa navicularis.

TREATMENT.—The inflamed parts should be kept at rest and covered with cold lead and opium wash. If suppuration occurs, the abscess should be freely opened and irrigated with hydrozone of

a 50 per cent strength or a solution of mercuric chloride, 1 to 4000, and packed with sterile gauze. These abscesses should not be opened until suppuration is well advanced in order to prevent urinary fistula. A plug of inflammatory material closes the urethral opening of the follicle at this time and prevents the urine from leaking into the abscess cavity.

ACUTE PROSTATITIS.

Acute prostatitis is a frequent complication of urethritis. It is one of the most serious and painful of the acute affections of the genito-urinary system. It would no doubt surprise us if we knew how many of these cases of prostatic trouble in the middle-aged and old could be traced back to a previous urethritis.

In all cases of posterior urethritis there is congestion of the prostate gland. The prostate becomes hyperemic and swollen, which gives rise to a sense of fulness in the perineum and rectum, with tenesmus and local pain in the prostate, as the fecal masses pass over it. Great pain in urination is sometimes experienced and pain after urination. Rectal examination shows the gland to be enlarged, hot and painful. As a rule the congestion subsides when the urethritis improves.

TREATMENT.—The patient should be kept in bed and restricted to a milk diet. The urine

should be rendered alkaline by the use of the following or some similar mixture:

Potass. bicarbonatis.....oz. 1

Tinct. hyoscyamidr. 4

Fl. ext. kava-kava.....dr. 4

Aquæ, q. s. ad.....oz. 8

M. Sig. Tablespoonful at a dose.

The bowels should move freely every day. Hot water bags over the bladder and on the perineum, or hot rectal injections. Morphin suppositories may be used for the tenesmus. If abscess forms, open it through the perineum and drain thoroughly, the dressings consisting of iodoform and sterilized gauze.

RETENTION OF URINE.

Retention of urine depends on inflammatory swelling of the mucous and submucous tissues along with deep muscular spasm. This is the inflammatory or congestive stricture and may be precipitated by sexual or dietetic excesses, or indiscretions. Retention of urine, here, is essentially the same as when due to other causes. The treatment of retention will be discussed under Stricture of the Urethra.

COWPERITIS.

Cowperitis is not a frequent complication. It is due to simple extension of the infectious inflammation to Cowper's glands, which lie upon either

side of the urethra, behind the bulb and between the layers of the triangular ligament. There is likely to be considerable constitutional disturbance incidental to the close confinement of the inflammatory exudate within the triangular ligament. Suppuration usually occurs, but resolution may take place without it.

TREATMENT.—The use of urethral instruments is discontinued and the patient is put in bed. Cold applications are made to the perineum and an alkaline diuretic is prescribed, which in some cases may favor resolution. If fluctuation can be felt, the pus must be evacuated. The patient is anesthetized, the field of operation is rendered aseptic and he is placed in the lithotomy position. A large sound is then passed into the bladder and held by the assistant directly in the median line. The abscess is incised and if burrowing has occurred in different directions it must be followed up by free incision. The abscess cavity is then irrigated with a bichlorid of mercury solution, 1 to 2000, packed with iodoform gauze, covered with aseptic gauze and held *in situ* by a T bandage.

CYSTITIS.

Lydston, in his recent work, says: "The most frequent cause of acute cystitis is gonorrheal infection, the irritation produced by harsh treatment of gonorrhea coming next in order. The

gonorrheal patient is allowed to go about as recklessly as when in his normal condition, the most active exercise being indulged in, in many cases without a word of warning from the medical attendant. As a result, extension of the urethral inflammation occurs and the patient is attacked by some such complication as cystitis, prostatitis or epididymitis."

The inflammation is usually limited to the mucous membrane around the urethral orifice, but sometimes extends and involves the entire mucosa of the bladder.

SYMPTOMS.—The symptoms are usually more severe in character than those of acute urethritis. The patient, in addition to those, complains of a constant pain over the bladder and in the perineum.

TREATMENT.—Stop all instrumentation of the urethra and put the patient on a light diet. Rest in bed is necessary, with hot applications over the bladder and on the perineum. Hot rectal irrigations and hot sitz baths give great relief. The urine is kept bland by means of alkaline diuretics, demulcents and mineral waters. Tenesmus is best combated by the use of codein, or by morphin in the form of suppositories. Rochelle salts or magnesium citrate solution may be employed to keep the bowels moving freely. When the acute symptoms have subsided the posterior urethra and blad-

der should be treated locally by means of irrigations.

EPIDIDYMITIS AND EPIDIDYMO-ORCHITIS.

Epididymitis is a common complication of acute urethritis and consists of an acute inflammation of the epididymis, which, if it extends to the testicle, is called epididymo-orchitis. The vas deferens is also involved in severe cases and the tunica vaginalis may be the seat of an acute hydrocele. Swelled testicle usually occurs during the first three or four weeks of the disease and is caused by the inflammatory process extending from the floor of the posterior urethra into the ejaculatory ducts and thence to the epididymis and testicle. In most cases it is unilateral, although both glands may be attacked at the same time or successively.

SYMPTOMS.—There is pain in the testicle, a dragging, aching sensation, extending up the cord, groin and even to the kidney. Rise in the temperature generally occurs (102° to 104° F.), and chills. The pain in the testicle and groin becomes so great that the patient has to lie down, supporting the scrotum with his hand. On examination the scrotum is found to be hot, red and edematous and the epididymis enlarged, hard and tender. The testicle in severe cases becomes as large as an ordinary sized orange. The discharge from the urethra usually ceases during the attack.

TREATMENT.—The patient is put in bed. The scrotum should be supported by a pillow between the thighs and well up in the perineum, or by a rubber plaster in the shape of a band three or four inches wide beneath the scrotum and attached to each thigh.

Locally, in the acute stage, lead and opium wash might be applied or flaxseed poultice and tincture of opium; or, better still, a poultice of fine-cut chewing tobacco and tincture of opium. In the subacute stage, silver nitrate solution (40 grs. to the ounce) may be painted on the scrotum covered with oiled silk over cotton wool.

Another useful combination is the following:

Ol. gaultherii.....dr. 2

Tinct. iodin.....dr. 2

Ichthyoldr. 1

Collodii flex., q. s. ad.....oz. 1

M. Sig. Apply once a day.

In the chronic stage mercurial ointment may be tried. The internal treatment consists in keeping the bowels loose, and potassium iodid is sometimes beneficial, especially in the subacute or chronic stages.

SEMINAL VESICULITIS.

Seminal vesiculitis, when gonorrheal in origin, occurs about the same time as epididymitis. The inflammation passes directly from the floor of the posterior urethra through the common ejaculatory

duct to either one or both vesicles. The symptoms are about the same as those of acute prostatitis, the patient having frequent and painful urination with vesical and even rectal tenesmus. There are often painful nocturnal pollutions stained with blood. These patients usually complain of a fulness just within the anus or in the perineum. In severe cases there is more or less fever and general weakness. The urethral discharge is usually diminished. Chronic seminal vesiculitis may follow the acute form.

TREATMENT.—Is about the same as that for posterior urethritis, except that cold water injected into the rectum may give more relief than hot water. If an abscess forms, the pus must be evacuated by an incision through the perineum, just in front of the anus. The abscess cavity is irrigated, packed and dressed in the usual manner.

In the chronic form of this complication, the vesicles should be massaged once a week and the same treatment adopted as for chronic posterior urethritis and prostatitis.

ADENITIS, OR BUBO.

The inguinal glands often become tender and enlarged during acute urethritis, but, luckily for the patient, they rarely suppurate. This was the most common complication in one hundred cases, occurring in fifteen of them.

TREATMENT.—Keep the patient as quiet as possible and paint the groin with tincture of iodine, or cover with unguent. iodi. comp., spread upon gauze, and held in place with a spica bandage.

LYMPHANGITIS.

The lymph vessels of the penis may be attacked by inflammation during the course of an acute urethritis. They become hard and painful and project prominently on the dorsum of the penis. The penis becomes enlarged and edematous and exhibits the inflamed lymphatics in the form of red lines running beneath the integument. Suppuration seldom occurs.

TREATMENT.—Rest in the recumbent posture is to be enjoined. The penis should be kept in the horizontal position and surrounded by cold lead and opium wash. In some cases a useful application is an ointment composed of iodine and ichthyol, ää dr. 1 to the oz. of lanolin.

PAPILLOMATA OR VENEREAL WARTS.

These sometimes occur as a complication of gonorrheal balanoposthitis, especially when there is an abundance of smegma. They resemble soft warts elsewhere. Some claim they are neurotic in origin.

TREATMENT.—Cauterization with carbolic acid or fuming nitric acid may be tried. Thuja orientalis, both externally and internally, has been

recommended by Dr. Keyes. Excision is often the best procedure.

BALANITIS.

Balanitis is an inflammation of the mucous membrane of the glans penis. Posthitis is an inflammation of the mucous membrane of the prepuce. When the inflammation affects the whole membrane it is called *balano-posthitis*.

CAUSES.—Uncleanliness is the chief cause, allowing the gonorrheal pus to be collected beneath the foreskin, where it sets up more or less inflammation. A predisposing cause is a long, tight prepuce, or phimosis, which prevents retraction and proper cleansing. The mucous membrane becomes red, thickened and covered with a thin purulent secretion. The glans soon swells and may become marked with patches of excoriation. If untreated, ulceration may result.

TREATMENT.—Keep the parts absolutely clean by washing and soaking in hot water and separated by means of absorbent gauze wet in a weak lead solution; boric acid, 4 per cent; or glycozone (10 per cent) solution. Antiseptic powders are very beneficial, especially the A B C powder, i. e., equal parts of acid boric, bismuth subnitrate, and calomel, or powdered acetanilid. The “red-wash” is also useful and contains:

| | |
|--------------------------|-------------------|
| Zinc, sulphatis | gr. 20 |
| Tinct. lavandulæ co..... | dr. $\frac{1}{2}$ |
| Aquæ, q. s. ad..... | oz. 8 |

The small excoriated patches might be touched with a solution of silver nitrate, 5 per cent. If there is much swelling of the prepuce and glans, keep the patient on his back, and the penis enveloped in gauze, wet in cold lead and opium wash. If the foreskin be very long, or phimosis exist, it may be necessary to do a circumcision.

Phimosis exists when the prepuce cannot be retracted behind the glans penis. Gonorrheal phimosis is usually due to a balanitis. Edema and redness of the foreskin generally result and sometimes sloughing. Later on, retention of urine may occur.

TREATMENT.—Put the patient on his back. Cleanse the cavity of the prepuce with hot water and corrosive sublimate (1 in 5000) several times daily, using a subpreputial syring (see Fig. 4), and operate as soon as possible. The simplest operation is to slit up the prepuce on the dorsum from front to back; carefully disinfect the sores if there be any present and then stitch the mucous membrane to the skin. When the prepuce is very long, it is better to do a complete circumcision, which is described in a separate chapter.

Paraphimosis is that condition in which the prepuce has been retracted behind the glans and becomes strangulated. The small preputial orifice which is pushed back behind the corona forms the band of constriction on the dorsal surface of the

penis. This prevents the return circulation and causes deformity of the organ from edema. Ulceration may occur, and in neglected cases gangrene.

TREATMENT.—The deformity should be reduced immediately. Generally speaking, if a paraphimosis lasts more than sixty hours you cannot reduce it without cutting the constriction. It is reduced by drawing the prepuce forward, at the same time making pressure on the head of the penis. Hot lotions of dilute solutions of subacetate of lead and opium are recommended to reduce the inflammation. Bandaging is beneficial, especially an elastic bandage. A small incision is made through the dorsal surface of the band, after which the glans can be readily reduced and prepuce brought forward. It is often advisable to perform circumcision to prevent the recurrence of paraphimosis or phimosis.

ARTHRITIS.

Arthritis is not a very frequent complication of urethritis. Some patients are affected with this complication with every attack of urethritis. It usually begins during the subacute stage or after the disease has become chronic. It has occurred in one case as early as four days after the onset of the disease. It is due to systemic infection by the products of urethral inflammation. The gonococcus of Neisser has been found in arthritic and

tendinous effusions as well as in the exudations of pleurisy, and in the vegetations of endocarditis. Petrone found the gonococci in the blood of patients suffering from gonorrheal arthritis. In other cases toxins are likely formed by the virulent germ infection, enter the circulation and finally reach the affected parts. Strumous, cachectic, gouty and rheumatic patients are more predisposed to this complication than healthy persons.

It is an inflammatory process which may occur during the course of gonorrhea, attacking the joints, bursæ, muscles, nerves, fibrous tissues, sheaths of tendons and synovial membranes. It occurs oftener in men than in women.

CAUSE.—The chief factor in the causation is the gonococcus and its toxins; this germ may be associated with pyogenic microbes. If the exudation in the joint be serous or sero-fibrinous in character, we find gonococci, but if sero-purulent or purulent, we discover pyogenic microbes. The latter is more severe. Some claim that the septic material is only absorbed from the posterior urethra.

SYMPTOMS.—In most cases several joints are attacked at the same time. Those most commonly affected and in order of frequency are the knee-joint; the tibio-tarsal joint, the wrist joint; finger and elbow joints. The hip and shoulder joints are rarely involved. The synovitis begins

with sudden pain and heat in the joint or joints, rise of temperature, chills and feeling of general malaise. On examination, the joint is found to be distended with fluid, fluctuating and painful. The skin surrounding the joint is red and hot. If the exudation be sero-purulent or purulent, more or less destruction of the articular surfaces results, followed by ankylosis. The sheaths of the extensor tendons of the hand are usually attacked when the wrist is involved, and the dorsal flexors of the toes when the ankle is involved.

DIAGNOSIS.—The following points, pointing toward gonorrhea, should be noted: (1) Urethral discharge or shreds in urine containing gonococci; (2) the time of appearance—generally in the chronic stage; (3) successive involvement of joints, such as knee, ankle, wrist, etc.

PROGNOSIS.—As a rule gonorrheal arthritis is harder to get rid of than rheumatism and patient is very apt to have another attack if he contracts gonorrhea again.

TREATMENT.—The joints must be put at rest and covered with compresses wet in cold lead and opium wash. When the acute symptoms subside, the cold applications are stopped and replaced by applications of compound iodine ointment; or the thermo-cautery may be used, after which firm and uniform pressure is exerted by means of a flannel bandage, cut on the bias. If the fluid does not

disappear under the treatment, it must be withdrawn and joint irrigated with bichlorid of mercury solution (1 in 5000) or peroxid of hydrogen, in the usual manner. Occasionally the inflammation extends; erosion of surfaces and great deformity result, when resection may be necessary. The most important point in the treatment is to cure the lesions in the urethra, as they are the points of entry of the infectious material. For the local pain it may be necessary to use opium or morphin.

In the chronic stage the joints should be exercised and massaged daily and large doses of potassium iodid, or, in some cases, tonics may be beneficial. The salicylates do no good in this disease.

NEUROSES.

Cases are met in which arthritis limits itself to a single nerve, as the sciatic. Myalgia and perineuritis sometimes occur in connection with urethritis. Cases have been reported illustrating the influence of urethritis upon the nervous system. Dufour witnessed a case, terminating fatally, in which the autopsy revealed softening and edema of the spinal arachnoid. Tambourer observed a patient, who, in consequence of gonorrheal arthritis, developed phlebitis of the femoral vein, cerebral embolism, convulsions, paralysis, and death, preceded by three days unconsciousness.

Cases of peripheral neuritis, neuralgia and muscular atrophy, due to gonorrhea, have been reported by different writers. In 1889 we attended a young man who died of cerebral meningitis, seven days after developing a virulent urethritis. Venturini drew the attention of alienists to the importance of gonorrhea in the production of juvenile insanity. Panas saw a case of double neuro-retinitis due to urethritis.

The treatment of these neuroses come more properly under the special monographs.

GONORRHEAL STOMATITIS.

Souplet, Cuttler, Rosinski and Leyden have described cases of gonorrheal stomatitis communicated by coitus *ab ore*. Petit relates a case of this form of stomatitis, the etiology of which was rather difficult to determine. "The patient, a man of thirty years, presented when first seen a very marked glossitis with thickened epithelium which, when scraped off, exposed to view a number of superficial ulcers. This condition involved the entire mucous membrane of the mouth. On the next day the symptoms were worse. Mastication was impossible and the fetor was repulsive. The submaxillary ganglia were swollen and painful. The patient, being in the habit of buccal coitus, the woman by whom he might have been contaminated was examined. Nothing was found

upon the genitalia of the latter except a slight uterine discharge. The gonococcus could not be detected by bacteriological examination, neither was that organism discovered in the mouth of the man having stomatitis. On the other hand, the suspected woman had had gonorrhea six years previously and the man ten years previously. Under these circumstances the present outbreak could be explained only by two assumptions, either the gonorrheal stomatitis was a residuum of a generalized gonococcic infection or the woman's clap had developed in her a condition of latent microbism, capable of exciting an acute attack under the influence of irritation, by favor of a gate of entrance or a predisposed soil."

GONORRHEAL CONJUNCTIVITIS.

Gonorrheal conjunctivitis is an acute and virulent process attacking the ocular and palpebral conjunctivæ, caused by the transference of gonorrheal pus from the genitals to the eye by means of the fingers, dressings, towels, utensils, etc. This terrible malady is fortunately rare. The right eye is more commonly affected than the left, since most patients handle the penis and rub the right eye with the right hand.

SYMPTOMS.—A dry, sandy, sticky feeling is experienced by the patient within a few hours after infection, after which redness, edema of the con-

junctiva, and increased lachrymation sets in. The lids are glued together at their margins by a collection of sticky, tenacious mucus.

The foregoing symptoms increase in severity and are now accompanied by a profuse purulent discharge, which flows out from between the palpebral fissure. The patient is at this time unable to open the affected eye.

There is a severe pain in the eyeball, temple and forehead; the pulse is accelerated and the temperature ranges between 101° to 103° F. There is also anorexia and general malaise.

PROGNOSIS.—The prognosis is most grave. Unless immediate and energetic treatment be adopted the eye is lost, or loss of vision is pretty sure to follow.

TREATMENT.—Treatment must be started immediately and no time lost. Delay may eventuate in the loss of the affected eye. If the attending physician is unfamiliar with diseases of the eye he should call in an oculist.

Put the patient to bed in a well ventilated room. Shield the sound eye to prevent its infection. This can be done by cutting two pieces of rubber plaster, the one four and the other five inches square, with their adhesive surfaces in contact, between which, in a hole made in their center, a concave watch glass is fastened. Through this the patient is able to see and the physician to inspect the sound eye.

The plaster is then secured to the skin. If it does not adhere properly, its edges may be sealed with flexible collodion.

The attending physicians and nurses must be extremely careful of the danger of infection. Their nails and hands should be scrupulously clean. They should wear large, plain glasses to protect their eyes while administering to the patient.

The eye must be washed out with a cold solution of boric acid (4 per cent) as often as any pus accumulates. In the meantime, the eye should be kept covered with cold absorbent gauze, taken from a block of ice and changed every five or ten minutes. After its removal it should be burned *immediately*.

Flushing the eye by means of an irrigator held sufficiently high to permit the boric acid solution to flow in a gentle stream, is to be warmly recommended.

Twice daily, instillations of a few drops of a 2 per cent solution of silver nitrate should be made into the eye; the silver nitrate solution is applied directly after a boric acid flushing. Should the cornea become involved, we have to resort to the use of atropin sulphate, gr. 2 to the ounce of water, two or three drops of which may be deposited in the eye twice or thrice daily, the nitrate of silver being discontinued.

Leeches to the temple or blisters behind the ear may be tried to reduce the swelling and inflammation. An occasional calomel purge and a low diet are of advantage. Later on, however, the diet may be more generous and supporting. If there is much pain codein in one-quarter grain doses may be given. In conclusion it must be remarked that two competent nurses, if possible, should be employed, one for the day and the other for the night.

* * *

Doctor N. Sorrentino, of Naples, describes thirty-one experiments performed upon rabbits. The conclusions deduced by him are as follows: The gonococcus produces locally an intense irritant action; large amounts injected cause marasmus. Genuine localization is of traumatic origin and due to the production of a *locus minoris resistentiæ*. Endomyocarditis and serious alterations of the spinal cord may be excited. The other microbes contained in the muco-pus of gonorrhea are not pathogenic for animals and exert no action upon the human urethra. The gonococcus is endowed with a genuine pathogenic action, which may be localized at a distance from the point of injection.

Cutaneous rashes probably of an angio-neurotic nature have been produced by urethritis. In some instances a generalized eruption has been accompanied by loss of the nails. It would seem, there-

fore, that gonorrhea is frequently, if not always, a constitutional disease. Space will not permit us to call attention to the many serious and disastrous results produced by gonorrheal infection in the female. Suffice it to say that if gonorrhea were eradicated the gynecologist's work would be reduced almost one-half.

CHAPTER III.

NON-SPECIFIC URETHRITIS.

There is no doubt that in a number of instances urethritis may be due to a legion of causes other than the infection by the gonococci of Neisser. There is, however, a class of physicians which obstinately adheres to the false presumption that every case of urethritis is caused by the latter factor, and it is therefore our aim to prove that in a number of cases we have to deal with the so-called "innocent or non-merited form of urethritis." To begin with, three cases will be cited which will strongly corroborate this statement.

Case I.—L. D., male, four years of age. Patient's mother stated that for two days she noticed a discharge from his urethra, together with a swollen and inflamed condition of the organ. On examination a muco-purulent urethral discharge was detected, together with a balano-posthitis. Interrogation as regards cause revealed nothing. The family and previous history of the boy is good. A diagnosis of acute urethritis was made. An alkaline diuretic was prescribed and the mother told to report again. After three days she returned and was pleased to state that the patient was improving. Once more his genitalia were examined and by closer inspection it was noticed that something projected from the meatus urethrae,

evidently a foreign body. After extracting and washing the same, it proved to be of vegetable texture, perhaps a hay-stalk, the fibers of which underwent maceration, still sufficiently intact to reveal the true cause of the malady. The treatment was continued for two weeks longer and the patient fully recovered.

In this case we find the clinical picture of an acute urethritis, due undoubtedly to a foreign body introduced into the urethra in some way, still just as severe as an ordinary gonorrhea.

Case II.—Mr. M. B., twenty-eight years of age, bookkeeper, Russian by nationality, with a good past and family history, presented himself with symptoms of a severe form of urethritis of about two days' duration. This poor fellow seemed to be greatly embarrassed, being recently married, and unaware of any immoral sexual transgression, he was much perplexed to find himself attacked by such a malady. He admitted, however, that he indulged excessively in venery with his wife. Probably the latter was the real cause of the affection. An alkaline diuretic was prescribed and sexual intercourse forbidden and in less than two weeks the patient was well.

This case satisfactorily indicates that indulgence in venery may bring about a severe urethral inflammation, simulating specific urethritis.

Case III.—B. W., forty-five years of age, labor-

er, German by nationality, was attacked—rather suddenly—by an acute urethritis. The family and past history of the patient showed nothing abnormal. He was a robust plethoric-looking man. On examination an urethral discharge was found with a considerable degree of posthitis. He bitterly complained of pain in the testicles and in the groin of a lancinating character and periodic in nature. No specific cause could be detected and patient persistently denied having had any improper sexual intercourse. Occasionally he was troubled with headaches. An alkaline diuretic was prescribed and he was directed to bring a sample of his urine. The latter had a milky appearance, and upon treating it with a solution of ferric hydrate ($\text{Fe}(\text{OH})_3$), a very heavy precipitate of ferric phosphate ($\text{Fe}_2(\text{PO}_4)_2$) was thrown down, showing an abundance of triple phosphates. The alkaline mixture was continued, with the addition of fluid extract of *Fabiana imbricata* (pichi) and the patient put upon a strict dietetic regime, forbidding him, for the time being, alcoholics and all farinaceous and phosphatic food. The pain gradually declined, the urethral discharge diminished, the urine became clearer and the patient entered upon a speedy recovery.

This case, in its turn, shows that a phosphatic abundance in the urine may, by virtue of the irritating properties of the triple phosphates, set

up a urethral inflammation and a reflex testicular neuralgia. If space would permit, a number of similar cases could be cited.

To summarize, then: It is evident from the foregoing that urethritis is due to divers causes, others than the microbe. "The etiology of urethritis," says Professor Hayden, in his excellent manual on venereal diseases, "is not as yet an absolutely settled question and the physician should therefore exercise the greatest care and precaution before giving his opinion as to its origin, for on his decision may rest the honor and happiness of wife, husband and family. . . . Many men contract typical gonorrhea from women either during or immediately after the menstrual epoch, the women being free from gonorrhea. These cases are usually severe in character. It is possible for a man to contract gonorrhea from the secretions of the uterus, a lacerated cervix and perineum, and vulvo-vaginal secretions due to uncleanliness. Bearing in mind the foregoing facts, which have been demonstrated by the most careful observers, the physician will do well to remember that gonorrhea in the male does not necessarily mean gonorrhea in the female, and that a man can contract gonorrhea from a woman who is true and virtuous, but who is suffering from some disease of the uterus, cervix, etc., which gives rise to irritating discharges. It is also well to bear in mind that the menstrual

secretion is very acrid in character and can and does produce urethral inflammation in the male."

Owing to the experience of the authors in venereal diseases, both in hospital and private practice, it would seem that a differentiation between the specific and non-specific forms could arbitrarily be arranged. It may be useful to some extent and afford an available means for diagnosis:

| SPECIFIC. | NON-SPECIFIC. |
|--|---|
| <p>Etiologic: Gonococci of Neisser.</p> | <p>Etiologic: Other micro-organisms, notably the trichomaines vaginalis; foreign bodies; hyper-acidity of urine; calculi; excessive venery; tubercular invasion of urethra; indulgence in Baccho; an excessive albuminous diet; uric and lactic acid diathesis, etc., etc.</p> |
| <p>Period of incubation, 2—7 days.</p> | <p>No definite period of incubation.</p> |
| <p>Of longer duration and apt to become chronic in character.</p> | <p>Duration from two to four weeks; does not tend toward chronicity.</p> |
| <p>Complications, especially adenitis and epididymitis apt to set in.</p> | <p>Usually no complications.</p> |
| <p>Does not yield readily to treatment.</p> | <p>Yields readily to alkaline medication.</p> |
| <p>General condition of patient more or less involved, i. e., fever, malaise, anorexia, etc., are apt to be present.</p> | <p>Seldom so.</p> |
| <p>Predominating between ages of twenty and thirty.</p> | <p>May occur at any age.</p> |

Although the foregoing chart is of slight clinical importance it may, as mentioned; prove the means of a better understanding of the subject under consideration.

TREATMENT.—Reliance may be placed upon the alkalies, as potassium citrate, acetate or bicarbonate, in combination with a mild sedative, as hyoscyamus, to allay the urinary tenesmus. The diet should be light, easily digestible, and non-nitrogenous, with the exception of milk, which the patient is allowed to drink *ab libitum*. Highly seasoned dishes should be prohibited. Green vegetables are not to be recommended, but the patient may partake of fruits, as apples, peaches, etc. The mineral waters, as Seltzer, Vichi, Poland, Apollinaris, are adequate beverages. Alcoholics in any form should be strongly forbidden, as well as tea, coffee and cocoa. Direct the patient to abstain from sexual intercourse and sleep on a hard mattress but lightly covered. The bowels should be kept freely open by some mild laxative, as saline purgatives are apt to produce urethral irritation. When the severity of the inflammation is in its decline fluid extract of *Fabiana imbricata* (pichi) may be added to the alkaline mixture. This drug seems to exert a sedative influence upon the urethral mucosa and augments the process of healing. Under the same category may be included the fluid extract of saw palmetto, and

kava-kava. The use of injections in this stage and form of urethritis must be condemned, and the various urethral irritants discarded, as copaiba, buchu, gurjun, etc. Methylene blue in doses of from one-fourth to one-half grain thrice daily has been highly recommended by some authors, but proved inefficient in the author's hands. Next to the alkalies, the frequent administration of boric acid and salol in combination is attended with excellent results. Cleanliness of the genital organs is imperative, and patient should therefore bathe his genital organs once or twice daily.

This is the usual treatment for cases of non-specific urethritis, but as every case is a study unto itself do not forget to remove the cause, and the latter is by no means uniform.

CHAPTER IV.

CHRONIC URETHRITIS OR GLEET.

Acute Urethritis becomes chronic after it has existed for about ten weeks, the discharge still continuing.

ETIOLOGY.—(1) Indulgence in liquor and coitus during the declining stage, the patient fancying himself cured on account of the disappearance of the discharge, stops treatment too soon. (2) Treatment has been neglected in the early stage, or a too energetic or abortive treatment has been tried. (3) Urethritis tends to become chronic in anemic, debilitated and scrofulous individuals.

Chronic Urethritis may be divided into two forms, i. e., Anterior and Posterior.

I. CHRONIC ANTERIOR URETHRITIS.

SYMPTOMS.—The meatus is glued together in the morning by a sticky discharge, which may be either serous or muco-purulent; this is termed the *morning-drop*. The urine usually contains shreds and flakes in various proportions. The shreds are composed of pus and epithelial cells held together by fibrin or mucin. They are thread-like or long, when coming from the anterior urethra and float for some time in the urine. When they come from the posterior urethra, they are lumpy and sink to the bottom of the vessel. The

threads come from congestive patches or superficial ulcers. The stream of urine is irregular, spurting in different directions, and at times, after urination, there is a dribbling of urine, due to a thickening of the urethral walls, which leaves them more or less rigid and inelastic.

II. CHRONIC POSTERIOR URETHRITIS.

In about 10 per cent of all chronic cases the posterior urethra is involved.

SYMPTOMS.—(1) The discharge is very slight and serous. (2) Nocturnal pollutions are apt to occur, accompanied by a dull, painful sensation in the prostate. (3) Micturition is frequent and painful. (4) The urine contains ragged shreds, which sink rapidly to the bottom of the vessel.

TREATMENT OF CHRONIC ANTERIOR URETHRITIS.—All that has been said in regard to hygiene and diet in the treatment of acute urethritis should be observed here. Urinary disinfectants and balsamics may be administered with advantage in this form.

The following are useful disinfectants and anti-blennorrhagics:

| | |
|-------------------------------|-------------------|
| Potassii acetatis | dr. 3 |
| Ext. pichi, fl. | dr. 4 |
| Urotropin | dr. $\frac{1}{2}$ |
| Syr. simplicis, q. s. ad..... | oz. 2 |

M. Sig.: One dram in water two hours after meals.

Or—

Saloldr. 1

Urotropindr. 1

Div. in capsules No. XV. Sig.: One four times a day.

Or—

Methylene bluegr. 6

Ol. santaldr. 1

Ol. cinnamongtt. 4

Div. in capsules No. XII. Sig.: One two hours after meals.

Lafayette Mixture (the formula of which has already been given) is one of the best balsamics. During the use of these preparations retrojections are very useful. First of all, the patient urinates; then pass a thoroughly cleansed soft rubber catheter, well lubricated with vaselin or glycerin, as far as the bulb of the urethra. Attach a 4-ounce Ultzmann syringe, filled with a warm, medicated fluid, by means of a coupler, to the end of the catheter (see Fig. 5), and inject slowly; then withdraw the catheter. The fluid returns to the meatus and is caught in a vessel, and thus all erosions and diseased spots are brought in direct contact with the solution. Retrojections may be given about three times a week, as a rule, and the amount of fluid used at each sitting varies from 4 to 10 ounces.

A better appliance is the Valentine douche (see Fig. 7), which is admirably constructed and has many advantages over the ordinary syringe.

The following are useful formulæ for irrigations:

| | | |
|------------------------|-----|---|
| Argent. nitratis | gr. | 2 |
| Aquæ | oz. | 8 |

| | | |
|-----------------------|-----|---|
| Potass. permang. | gr. | 2 |
| Aquæ | oz. | 8 |

| | | |
|-----------------------------|-----|---|
| Hydrarg. chlor. corros..... | gr. | 3 |
| Aquæ | oz. | 8 |

| | | |
|----------------|-----|----|
| Mercurol | gr. | 10 |
| Aquæ | oz. | 8 |

| | | |
|-----------------|-----|----|
| Protargol | gr. | 10 |
| Aquæ | oz. | 8 |

The strength of all these may be increased from sitting to sitting.

Should a cure not be effected within four months and dribbling of urine still continuing, small curved steel sounds (see Fig. 12) may be passed once a week and left in for at least five minutes. Owing to the pressure these exert upon the urethral walls, they assist in resolution and absorption.

TREATMENT OF CHRONIC POSTERIOR URETHRITIS.—The internal treatment is the same as that for Chronic Anterior Urethritis, but unfortunately it benefits the patient very little. The local treatment gives better results and consists of irrigations and instillations.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.

Fig. 5. Ultzmann Syringe.

Fig. 6. Stop-cock.

Fig. 7. Valentine Douche.

Fig. 8. Soft Rubber Catheter.

Have the patient urinate, and lie down with head and shoulders slightly elevated and knees flexed, in order to relax the abdominal muscles. A number 8 or 10 soft catheter, well lubricated with glycerin, is slowly and gently passed into the bladder. To the end of the catheter a fountain syringe is attached by means of a three-way stop-cock (see Fig. 6). The medicated fluid is allowed to flow into the bladder until the patient complains of a feeling of distention. Withdraw the catheter and tell the patient to retain the fluid for five or ten minutes, after which he is allowed to urinate, the solution coming in contact with all the congested eroded and ulcerated patches along the course of the canal. The medicated solutions should be warm and half of the strength of those mentioned. The strength may be increased at each sitting, three of which may be given weekly. From 6 to 10 ounces may be used each time, but some cannot hold even 4 ounces, on account of an irritable prostatic urethra. The same treatment is also applicable to cases of chronic cystitis following urethritis, except that larger quantities of medicated solution are used at each sitting and the fluid allowed to escape through the catheter, by opening the stop-cock. Notwithstanding all local and medicinal treatment, some of these cases are very obstinate and difficult to cure, and require bladder-drainage through the perineum.

After performing lithotomy, the tube is left in for a time, which gives rest to the urethra and bladder. At the same time irrigations may be used if necessary. If retrojections fail to cure urethritis within four or five weeks and the urine still contains shreds, then resort must be had to instillations of small quantities of concentrated solutions. A minim syringe and soft catheter (see Fig. 8) are used and 10 drops of a solution of silver nitrate (1 grain to $\frac{1}{2}$ an ounce) are injected into the posterior urethra. This may be repeated if necessary every third or fourth day. Mercuriol or protargol in 2-per-cent solutions may be used, and are not so painful as the silver nitrate.

The patient is not considered cured so long as pus or shreds are found in the morning urine, even if gonococci are not present. Some urethral lesions must be present and the discharge may be infectious.

It is the physician's duty to examine the morning urine a number of times before giving an opinion in regards to marriage. At least one year should elapse after the disappearance of the discharge before the patient is allowed to marry.

CHAPTER V.

STRICTURE OF THE URETHRA.

A short description of the anatomy of the urethra may not be amiss. It is a collapsible tube, extending from the meatus urethræ to the sphincter of the bladder, and is eight inches long. The angle formed by the urethra and bladder is usually about ninety (90) degrees.

The urethra consists of three layers, from within outwards, viz., mucous, submucous and muscular. The last is composed of both circular and longitudinal fibres, the circular surrounding the longitudinal. The vesical sphincter is composed entirely of circular muscular fibres. Half an inch from the meatus on its upper surface there is a valve-like projection of the mucous membrane, called the lacuna magna, in which small instruments are sometimes caught during examination. Mucous follicles, with large orifices are encountered for the first three or four inches of the urethra; the mouths of which are directed towards the meatus.

That portion of the urethra situated between the meatus and the anterior layer of the cut-off muscle is termed the anterior urethra, and is surrounded at its distal end by the compressor urethræ muscle.

That portion of the urethra situated between the two layers of the triangular ligament is termed the

middle urethra, and contains the orifices of the two Cowper's ducts.

That portion situated between the posterior layer of the cut-off muscle and the sphincter of the bladder is named the posterior urethra, and is surrounded by the prostate gland. On the floor of the posterior urethra a small prominence is found, called the verumontanum, and on each side of it the prostatic sinuses. The seminal vesicles and their ducts are also situated in this portion.

The length of the different portions is as follows:

Anterior urethra6 inches.

Middle urethra $\frac{1}{2}$ inch.

Posterior urethra $1\frac{1}{2}$ inch.

8 inches.

The shape of the urethra varies in different parts of the canal, perpendicular at the meatus, transverse further back, and like an inverted Y in the middle of the posterior portion, due to the projecting upwards of the verumontanum from the floor.

Stricture of the urethra may be defined to be an abnormal, organic contraction of some part of the urethral canal, attended by loss of dilatibility.

SITE OF STRICTURE.—The majority of them occur just in front of the anterior layer of the triangular ligament, on account of the laxity of the

mucous membrane of this portion. The next most common seat is the first three inches of the urethra from the meatus.

Strictures in most cases are single and usually come on slowly. It takes about one year for the stricture to appear after the first attack of urethritis.

PATHOLOGY.—At first there is an infiltration of connective-tissue corpuscles in the submucous tissue, which is at first soft and yielding. These small cells become converted into fibrous tissue as the process advances, and we have an unyielding, dense and firm contraction. The mucous membrane over it becomes edematous and thickened.

FORMS OF STRICTURES.—(1) Spasmodic; (2) Organic.

Spasmodic.—This is due to a sudden contraction of the compressor urethræ muscle, and occurs very often in neurotic and excitable individuals. It is usually reflex from the bladder or rectum and may be due to psychic causes, as fear or shame.

Organic.—The causes of this form are either gonorrhea or trauma, the former being the most common. Under the same category belong congenital strictures at the meatus.

SYMPTOMS.—A marked gleet discharge at the meatus may be noticed, or there may be only a drop or two in the morning. The urine contains threads

and flakes made up of pus, mucin and epithelial debris. The meatus has a bluish color, due to an interference with the return circulation caused by the stricture. The urethra behind the stricture is usually more or less dilated, and this dilatation, which generally increases, is due to the damming back of the urine.

The stream at each act of urination is forked or twisted, shooting out in different directions. The posterior urethra and bladder soon become congested and inflamed, which gives rise to increased frequency in micturition with pain and uneasiness in the perineum. The muscular walls of the urethra and bladder later on begin to hypertrophy, and the urine escapes with less force. The patient has to strain considerably at each act, which may cause bloody urine, hemorrhoids, prolapse of the rectum and even hernia. Painful erections are not infrequent.

The process continues and incontinence of urine results, due to a loss of contractility of the vesical sphincters. Also retention of urine may occur. When the bladder becomes involved, the patient complains of pain in that region. Ultimately the urine becomes ammoniacal, the phosphates are precipitated and it is loaded with crystals and pus, the latter sometimes forming a nidus for calculi.

COMPLICATIONS.—The urethral follicles may become inflamed, or even ulcerated; the urine pass-

ing over them may convert them into abscesses. When untreated, the abscesses rupture and develop into fistulæ, which may extend and finally open in the perineum, sorotum, gluteal regions, or on abdomen, allowing the urine to escape. The mucosa of the bladder becomes thickened from an hypertrophy of its muscular walls. Ridges form, the bladder walls soon undergo atrophy, and dilatation which may result in the formation of sacculi. Rupture of the bladder may follow these conditions and the urine escape into the peritoneal cavity. Accompanying these pathological changes, there is dilatation of the ureters, and later on pyelitis and occasionally pyo-nephrosis.

Extravasation of Urine.—As already mentioned, the urethra behind the stricture becomes thin, flaccid, weakened, and finally ruptures, allowing the urine to extravasate. The most frequent sites of extravasation are the following: (1) The penis, scrotum, and the cellular tissues of the thighs; (2) in the perineum and recto-vesical space; (3) the suprapubic region and the abdominal walls; (4) the cellular tissue of the pelvis.

Symptoms of Extravasation.—The patient experiences a sensation of something giving away suddenly in the urethra. This is soon followed by considerable edema in any of the regions mentioned above. The skin over them becomes tense and shiny, or emphysematous, sloughing, or gan-

grenous from the various urinary gases developed. There are chilly sensations or an actual rigor, followed by high temperature, general weakness and signs of uraemic coma.

DIAGNOSIS.—In order to diagnose stricture, we need the aid of sounds and bougies, the former being made of highly polished, smooth and nickel-plated steel. The tip of the sound should be conical and at least three sizes smaller than the shaft (see Fig. 9).

The French sounds run from 1 to 40, each number increasing by 1-3 mm. in diameter, a No. 1 being 1-3 mm. in diameter.

The following sounds are of the same size, viz.:

| | |
|----------|-------------|
| French | No. 21, |
| British | No. 12, and |
| American | No. 14. |

Bougies are of the following varieties: (1) Olivary bougies (see Fig. 10); (2) filiform bougies (see Fig. 11). The olivary bougies are black or yellow in color and very smooth. The shaft gradually tapers into the neck, which bears an olivary point. They are flexible, in order to conform to the shape of the urethra. The filiform bougies are about one foot long, and No. 2 or 3, French in size, with a tiny bulb at the distal end.

Methods of Examination.—As long as the patient is suffering from a muco-purulent urethral

discharge instrumentation should be deferred until this symptom has subsided.

Begin with as large an instrument as possible at first, as the smaller ones may cause irritation and spasm. Should the passing of a sound or bougie produce hemorrhage, it should be stopped immediately and not repeated for three days. Have the patient urinate first, to wash away any secretion, and then lie down on a table with head and shoulders resting on a pillow. This procedure relaxes the abdominal muscles and the suspensory ligament of the penis. Draw the clothing down as far as the knees and up to the navel, the object of this being to have a good view of the median line and to be able to depress the handle of the instrument between the thighs. Wash the instrument with soap and water and lubricate with glycerin before using it. Keep the tip of the instrument close to the roof of the canal.

While the sound is in the urethra palpation may sometimes reveal thickened or thinned patches. If the tip of the instrument meet an obstruction, the distance of it from the meatus should be noted. Remove the instrument and insert a smaller, until one is found which passes the obstruction readily. If the stricture be so tight as to prevent the passage of a small bougie, resort should be had to whalebone filiform bougies.

Sometimes the meatus is so small, that a large

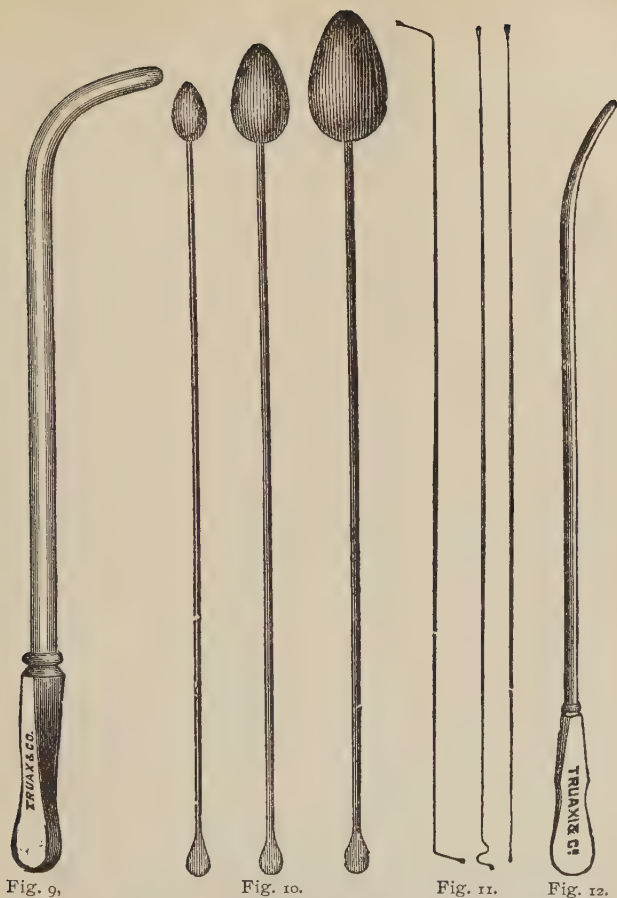


Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

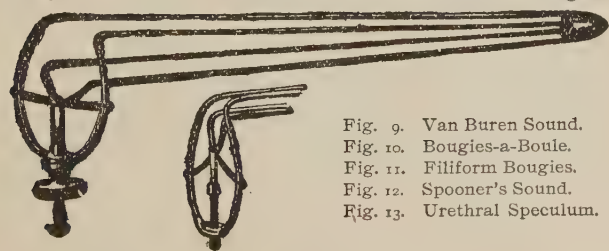


Fig. 13.

- Fig. 9. Van Buren Sound.
- Fig. 10. Bougies-a-Boule.
- Fig. 11. Filiform Bougies.
- Fig. 12. Spooner's Sound.
- Fig. 13. Urethral Speculum.

sound cannot be passed, when it will be necessary to enlarge the meatus by making a small slit in it.

TREATMENT.—Gradual dilatation of the stricture, with bougies and sounds, is the best treatment as a rule. Should this fail, one of the cutting operations will be next in order. The urine should be examined for shreds and flakes and the extent and severity of the inflammation ascertained. The condition of the kidneys should be determined.

Treat first the urethritis or cystitis when present. If the urine be acid, alkalines should be given to render it bland; and if it be ammoniacal in reaction (as in cystitis), antiseptics and acids may be given with advantage, as, for example, salol, benzoic and boracic acid, dilute nitromuriatic acid, etc.

Strictures at or within the meatus are very difficult to dilate on account of the superabundance of firm connective tissue. Meatotomy should then be resorted to. The normal meatus equals in size that of a No. 12 to 15 American sound. A 4-per-cent cocain solution is injected into the urethra for about two inches and held there by compressing it with thumb and index finger for about three or four minutes. A straight, blunt bistoury is used, the incision being slowly made downward on the floor and directly in the median line to any desired size. A straight steel sound (see Fig. 12) is then passed; this should be repeated every day

to prevent a too early closure of the small wound.

In order to properly examine the meatus, an instrument called the meatoscope (see Fig. 13) may be used. If the stricture be situated in the penile urethra, it can usually be dilated by bougies and straight steel sounds. Should this fail, urethrotomy may be necessary. To detect the exact location and extent of the stricture Otis's Urethroscope is very useful (see Fig. 14). After the location of the stricture has been ascertained, and after gradual dilatation fails, internal urethrotomy may be performed by the use of a urethrotome (see Fig. 15).

In strictures beyond the peno-scrotal junction, gradual dilatation is tried before any cutting operation is resorted to.

Gradual Dilatation.—By this we understand the passing of as large a sound as possible, and daily increasing it in size.

For example, the first day we can only pass a No. 8, American sound; the next day, Nos. 8 and 9; the following day, Nos. 9 and 10, and so on until No. 15 or 16 is reached, which is the normal size of the urethra (see Fig. 16). The sound should be left in for ten minutes, in order to exert pressure on the thickened walls of the urethra and assist in absorption of the exudation. In case the stricture only admits a filiform bougie, it may

be left *in situ*, as a guide for a tunneled sound (see Fig. 17).

Rapid dilatation is very dangerous and should only be used in extreme cases, and when the patient can remain in bed.

It is advisable for the patient to report monthly after successful dilatation, when a sound should be passed. After a few months the interval between his visits may be lengthened. If gradual dilatation is of no avail, urethrotomy should be done. Internal urethrotomy should be limited to strictures within the pendulous portion of the urethra, not farther down the canal than five inches from the meatus urethræ.

Electrolysis and divulsion may be tried if necessary, but usually fail. Cauterization and over-distension have been used, but the results obtained have been very unsatisfactory.

Treatment of Extravasation.—Whenever extravasation occurs, the bladder must be promptly drained through the perineum. Perineal section must be done without delay, lest abscesses, sloughing or gangrene of the soft parts ensue, with absorption of septic matter.

After the patient has been anesthetized and placed in the lithotomy position, the parts are shaved and rendered aseptic. External urethrotomy or perineal section is then performed. The stricture should be thoroughly divided and a large

AMERICAN SCALE

| SIZE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | SIZE |
|-------------------------|----|----|----|----|----|----|----|----|----|----|----|------|
| DIAMETER MILLIMETERS | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| MILL DIAM | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |

Fig. 16.

Fig. 17.

Fig. 15.

Fig. 14.

- Fig. 14. Otis's Urethroscope.
- Fig. 15. Urethrotome.
- Fig. 16. Sound Gauge.
- Fig. 17. Tunned Sound

perineal tube inserted for drainage. The extravasation areas should be next incised, the urine liberated and any sloughing or gangrenous portions removed. The wound is then irrigated with a warm normal saline solution and packed with sterilized gauze.

Daily irrigation and dressing of the wound should be made with boric acid solution or bichlorid of mercury (1 in 8000) and carbolated or borated gauze.

If abscesses form, they should be immediately opened, scraped and thoroughly drained. The patient's strength should be maintained by nutritious food and the use of bitter tonics.

Retention of Urine.—This may occur at any time during an attack of urethritis or from stricture.

Hot foot or sitz baths are very valuable in relieving this condition. Sometimes small doses of opium or morphin are indicated. Hot water may be injected into the rectum while the patient is in the bath. If these means fail to relieve the tenesmus and congestion of the urethra, the following measures may be tried, viz.:

(a) Catheterize the patient with a soft rubber catheter or a silk catheter, or more rigid instruments if necessary. (See Figs. 18, 19, 20.) In retention due to prostatitis, the curved or olivary pointed catheter is useful.



Fig. 18.



Fig. 19.



Fig. 20.



Fig. 21.

Figs. 18-20. Different styles of Catheters.

Fig. 21. Retention Catheter.

Fig. 22. Aspirator.

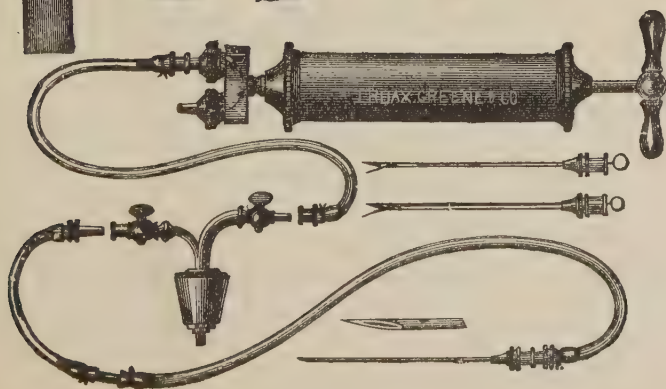


Fig. 22.

(b) If these cannot be passed, then insert a bougie-a-boule or a filiform bougie over which a retention catheter (see Fig. 21) may sometimes be passed, and the urine allowed to dribble away.

(c) If the foregoing measures fail, suprapubic aspiration of the bladder may be necessary. Pass the needle of the aspirator (see Fig. 22) through the anterior wall of the bladder, just above the pubes, in the median line, and thus avoid puncture of the peritoneum. After the urine has been evacuated the small wound is sealed with flexible collodion containing iodoform, or it may be dusted with boric acid and acetanilid and covered with a piece of adhesive plaster.

URETHRAL FEVER.—It is also known as urinary fever, catheter fever, or urinary sepsis. This condition is due to instrumentation of the urethra or bladder. In those cases urethral abrasions or damaged kidneys are usually present. Urethral fever must not be confounded with that condition, known to follow the most gentle passage of aseptic urethral instruments and consisting of sudden pallor, faintness and even loss of consciousness. This is merely a reflex, nervous manifestation.

ETIOLOGY.—Besides the causes already mentioned the bacillus coli communis is the chief factor of urethral fever. Unclean instruments and

rough instrumentation play an important part in its causation.

SYMPTOMS.—Chilly sensations or an actual rigor mark the onset of urethral fever. The temperature soon rises sometimes as high as 104° Fahr. Accompanying this there is profuse sweating and great prostration. The urine is partially or totally suppressed and contains albumin, showing that the kidneys are more or less involved.

TREATMENT.—Rest, in a well-ventilated room, is necessary. The patient should be at once put on an alkaline diuretic, and if there are any signs of suppression of urine we should resort to the use of counter irritation over the kidneys by cupping, sinapism or blistering. Sweating should be induced by copious and frequent draughts of hot water, or by the use of fl. ext. jaborandi. Hot air baths, urotropin, diuretin and digitalis may be tried. If there is much pain and restlessness, codein and sulfonal may be administered. If the fever is very high, sponging, alcohol baths and the cold pack are useful, with salol and quinin. Normal saline solution may be administered, subcutaneously or per rectum. The lesions within the urethra should be kept clean with boric acid irrigations. In very severe cases antistreptococcus serum may be tried.

CHAPTER VI.

CIRCUMCISION.

This is an operation for the shortening of the prepuce and a widening of its orifice. It dates back as far as 1941 B. C. It is practiced as a religious rite by the Jews, and some eastern nations make use of it for hygienic purposes.

METHOD OF OPERATION.—In cases of phimosis a well-oiled probe is inserted into the preputial sack in order to detect adhesions and break them up. The parts to be removed may be marked off with an anilin pencil, the line being always in front of the corona. The redundant prepuce is now seized on both sides and drawn forward, until the circumcision forceps (see Fig. 23) rests on a level with the anilin line. Care should be taken not to include the tip of the glans within the forceps, which should be applied obliquely. With curved scissors or with Phimosis scissors (see Fig. 24) the tissue in front of the forceps may then be cut away. This method insures a loose, oval orifice, which can easily be moved forwards and backwards. The forceps are then removed and the bleeding stopped by compression or torsion. Any redundant tissue is trimmed off and old adhesions removed by the handle of the scalpel. A dorsal incision is next made through the skin and mucous membrane of the foreskin. The skin is then



Fig. 24.



Fig. 23.

Fig. 23. Phimosi Forceps.

Fig. 24. Phimosi Scissors.

stitched to the mucous membrane by the requisite number of interrupted sutures. The parts coapt naturally and healing is soon accomplished. The wound may be washed with an antiseptic solution. In the infant no sutures are required. The organ is dried and dusted with a mixture of equal parts of boric acid and acetanilid. A perforated piece of gauze is then put over the penis and held snugly together by a roller bandage. On the third day, as the swelling subsides, the sutures may be trimmed down close to the wound to prevent their being pulled out by the movements of the patient. Rest in bed is desirable and a light diet should be enjoined. Union by the first intention is the usual rule. On the fifth or sixth day the stitches may be removed, when the patient is allowed to return to his work. A mild laxative and an opiate for sleep are the only drugs required. This operation can be done fairly well under cocain injections, when the patient objects to general anesthesia. When due to some specific cause, healing by first intention may not be obtained, then the wound may be treated upon general surgical principles.

Another method of doing this operation is to make an incision along the dorsum of the prepuce from the orifice to the base of the corona, and to unite the two layers of foreskin on either side. Lister recommends several partial incisions at different points. Sometimes it may be necessary to

divide the frenum, if it is too short, care being taken not to divide the artery. If the vessel is severed, torsion should be used or a ligature if necessary.

Circumcision should be practiced as a hygienic measure for the prevention of venereal ulcers, herpes preputialis, collection and decomposition of smegma and preputial calculi. It is employed as a therapeutic agent in various neuroses, notably epilepsy, infantile convulsions, chorea and enuresis.

PART II.

The Venereal Ulcer and Its Complications.

CHAPTER VII.

THE VENEREAL ULCER OR CHANCROID.

This is also called the “Soft Chancre” or the “local contagious ulcer” of the genitalia. It is an acute, non-systemic, local, inflammatory and destructive lesion, and may invade the lymphatic vessels and glands related to it anatomically.

The Mode of Infection is either direct or mediate; the former when the contagious secretion is transferred during intercourse; the latter when it is transferred through some intermediate agent, as dressings, towels, instruments, etc.

CAUSES.—It is a septic auto-inoculable ulcer and undoubtedly due to a specific virus, the nature of which is unknown. The secretions of a chancroid or that of a chancroidal adenitis or lymphangitis may produce a venereal ulcer. Herpetetic vesicles, balanitis, pyogenic secretions of any kind and uncleanliness are efficient predisposing factors. It is more apt to occur in patients with a long, tight prepuce.

DESCRIPTION.—The period of incubation is indefinite, varying from one to seven days. The favorite seat of the chancroid is the mucous membrane of the genitals, the integument offering a greater resistance to the invasion of the virus. The first thing noticed is a small pustule with a bright red halo, which soon ruptures, leaving a round or

oval ulcer with sharply-cut edges, an uneven yellowish floor and worm-eaten walls. The secretion is brownish-yellow, purulent and auto-inoculable. The halo surrounding it becomes darker in color and somewhat edematous, shading off gradually into the surrounding parts, thus differing from the syphilitic sclerosis which is indurated, firm and sharply limited.

The duration of a venereal ulcer varies, depending a great deal upon its situation, the conduct of the patient and treatment.

Its most common site is the genitals of either sex, but may be found on other parts of the body, when it is always due to auto-inoculation, and is called "extra-genital." In the male it is frequently encountered on the inner surface of the foreskin or its border, on the corona or in the sulcus, at or within the meatus and on the integument. As a result of unnatural practices, it may be found at the anus, within the rectum or in the axillæ.

CHARACTERISTICS OF VENEREAL ULCERS.

The discharge is auto-inoculable, purulent in nature and brownish-yellow in color. The floor of the ulcer is ragged, uneven and yellow. The edges are sharply-cut, irregular and undermined. The ulcer is round or oval, pea-sized and usually multiple. The structures surrounding it are bright

red in color, somewhat edematous, but not indurated.

VARIETIES.—There are the following varieties of chancreoid: (1) *Follicular*.—This is usually situated at the junction of the integument and mucous membrane, and is the typical and most common form, a description of which has been already given. (2) *Elevated*.—This is due to considerable edema of the parts which raises the lesion above the level of the surface. (3) *Ecthymatous*.—This is usually found on the skin, the lesion being dry at first, but later becomes converted into a pustule, with more or less formation of crusts. (4) *Serpiginous*.—It shows a tendency to extend at its margin and spreads rapidly. (5) *Phagedenic*.—This form tends to undergo disintegration and results in gangrene, and is usually found in debilitated subjects.

| CHANCROID. | CHANCRE. | HERPETIC VESICLE. |
|--|---|---|
| Period of incubation varying from one to seven days. | Period of incubation is more definite, usually three weeks. | No period of incubation. |
| No marked induration, but slight edema. | Induration is marked, also, in the glands in anatomical relation with it. | Usually absent. |
| Secretion brownish - yellow, purulent and auto-inoculable. | Secretion serous, scanty and not auto-inoculable. | Secretion at first serous, then purulent. |

| CHANCROID. | CHANCRE. | HERPETIC VESICLE. |
|----------------------------------|--|---|
| Floor ragged, uneven and yellow. | Floor smooth, red and shining. | The lesion becomes covered with crust soon after rupture of the vesicles. |
| Usually multiple in number. | Only one present, and, if more, they are in the same stage of development. | Multiple and in groups. |
| Pain may be present. | No pain. | Both pain and pruritus. |

Other points of differential diagnosis will be given under Syphilis. There should be no difficulty in recognizing abrasions and fissures. It often requires several days before the ulcer assumes a typical appearance, and great care should be exercised before giving a positive diagnosis. In the mean time bland, local applications should be used, and the patient abstain from sexual intercourse.

PROGNOSIS.—The prognosis is usually favorable, provided the ulcer be kept clean and the patient rests. Ulcers, at or within the meatus, are very difficult to treat, as well as those situated beneath a long, tight prepuce.

TREATMENT.—The treatment of venereal ulcer in its incipency is much more important than in its maturity, and after its extension into the deeper tissues. In fact, the latter, as well as the phagedenic or serpiginous forms, can be conven-

iently prevented by observing the first principles.

In the first place, individuals suffering from venereal ulcers should be put upon a strict dietary regimen, with total abstinence from alcohol in any form. The diet should be light, nutritious and easily digested. Tobacco is a source of irritation, and should be prohibited. Direct the patient to abstain from coitus and sleep on a hard mattress, but lightly covered. The patient must be kept as quiet as possible, with the genitalia enveloped by a suspensory bandage.

There are but two general therapeutic indications in connection with the treatment of the ulcer proper, viz.: (1) Cleanliness; (2) cauterization. The first consists in keeping the sore absolutely clean, free from all irritating discharges, and separated from the healthy tissues. This can be accomplished by the various antiseptics, as boric acid, iodoform, bismuth subnitrate, calomel, aristol, iodol, europen, hydrogen dioxid, hydrozone, etc. The ulcer and surrounding inflamed area should be thoroughly washed at first with a hot boric acid solution, one dram to the pint, followed by the application of hydrogen peroxid or hydrozone in full strength or diluted, according to the case, by means of absorbent cotton wrapped on an applicator; this should be repeated every day. It is a valuable oxidizing and antipruritic agent. The ulcer is then dusted with a powder, composed of

equal parts of boric acid and aristol, or of equal parts of boric acid, bismuth subnitrate and calomel. Or the following may be used :

Acetaniliddr. 2

Acid, boricdr. 6

M. Sig. : Dust upon the ulcer thrice daily.

The antiseptic treatment is only applicable in cases where the ulcerative process is not extensive. Phagedenism may and can be avoided by the judicious treatment of the ulcer in its incipiency. All the dressings used upon or about the sore must be destroyed immediately after removal and the patient cautioned to scrupulously clean his hands after the dressings are completed, otherwise inoculation of other mucous surfaces might ensue.

Cauterization.—This should only be practiced when positively indicated. As a general rule it is unnecessary and even harmful, provided the ulcer can be kept surgically clean in the manner described above. A venereal ulcer should never be allowed to extend and become serpiginous or phagedenic. The latter, however, occurs not infrequently in cases in which the antiseptic treatment has not been strictly adhered to, or when the patient presents himself for treatment late in the ulcerative process. In such cases, where in spite of cleanliness and proper local treatment it extends and threatens to destroy the neighboring tissues,

we are compelled to resort to more energetic measures.

Cauterization is accomplished in the following manner: The ulcer is washed with a hot solution of boric acid, dried by means of absorbent gauze, and touched with cotton saturated with either pure carbolic acid, equal parts of carbolic acid and tincture of iodin, fuming nitric acid or pure hydrozone, which is fifteen times the strength of hydrogen dioxid of the pharmacopeia. The pledget of cotton and the wooden applicator should be destroyed immediately after. It is imperative to apply these caustics not only to the base, but also to the undermined walls and margins of the ulcer. This should be repeated every second or third day if necessary. Sometimes one cauterization suffices. When nitric acid is used the lesion should be anesthetized by the application of a 4-per-cent cocain hydrochlorate solution on absorbent lint for a few minutes. The patient is directed to remain quiet in the recumbent posture for some time after, and the penis enveloped by gauze wet with a cold lead and opium wash. In the meantime the penis should be bathed in hot hydrozone solution, one ounce of hydrozone to a pint of water, or in a warm solution of corrosive sublimate, 1 to 5000, three times daily, followed by the application of some of the antiseptic powders mentioned in the foregoing pages. In connection with the local treat-

ment the patient's general condition must be enhanced by the administration of iron, quinin and strychnin, with plenty of nutritious food and fresh air.

It is a bad policy to give opiates in cases of painful ulcers, for we render the already morbid tissues still more vulnerable toward further destruction. The bowels must be kept freely open by a mild laxative; saline purgatives are apt to produce urethral irritation.

By far the worst cases to treat are those situated at or within the urethra. They require a special treatment. Before resorting to local applications or injections begin with an alkaline diuretic, as potassium citrate, acetate or bicarbonate, in combination with fluid extract of pichi. This renders the urine alkaline and lessens the pain of micturition. The dietetic regimen, pointed out above, is equally applicable to cases of this kind. After this treatment has been followed for a day or two proceed as follows:

The patient having urinated, the prepuce is retracted and the parts washed with a hot solution of boric acid. A small soft rubber catheter, lubricated with glycerin, is then passed down the urethra beyond the site of the lesion, and a pint of warm water, to which one ounce of hydrozone has been added, is injected by means of an Ultzmann hard-rubber syringe or Valentine douche.

In this way the canal is deterged from behind forward, the solution escaping at the meatus urethra, where it is caught in a suitable vessel. Boric acid or iodol is then blown into the urethra and the organ enveloped with sterilized gauze.

A word about the surgical treatment of venereal ulcers. The latter, if situated beneath a tight prepuce which cannot be retracted, demands surgical interference. Before resorting to this, frequent and copious injections of solutions of corrosive sublimate, 1 to 5000, by means of a sub-preputial syringe between the prepuce and glans may be tried, as it often effects a cure.

If the ulcer is persistent, however, then the best plan is to make two lateral incisions through the prepuce and expose the ulcer for local treatment, thus preventing gangrene, with more or less destruction of the glans penis and the surrounding parts. The venereal ulcer is then treated in the manner outlined above. The raw margins of the wound are protected from infection by means of frequent dressings and ablutions with solutions of boric acid. The hemorrhage may be quite profuse, but is readily checked by compression. After the margins of the flaps have healed they may be removed by a simple plastic operation.

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CHAPTER VIII.

COMPLICATIONS OF CHANCROID.

The complications of chancroid are as follows: (1) Lymphangitis; (2) lymphadenitis or bubo; (3) phimosis and paraphimosis; (4) severe inflammation, sloughing and gangrene.

LYMPHANGITIS.

This is an inflammation of the lymphatics. They are tender, indurated, and may be felt as cords running along the dorsum of the penis. Edema and infiltration of the cellular tissue may be present and the skin over the vessels is hyperemic and adherent. Nodes may form and are prone to suppurate, after which ulceration may set in, forming a true chancroid. Lymphangitis is a comparatively rare complication.

The treatment is the same as for bubo.

LYMPHADENITIS OR BUBO.

This is an inflammation of the inguinal glands and constitutes one of the most frequent complications, occurring in 20 to 30 per cent of hospital cases.

In those of clean habits and who follow the surgeon's directions, bubo does not occur in more than 3 per cent of cases.

ETIOLOGY.—It is caused by the passage of septic secretions from the ulcer to the glands in the

groin by means of the lymphatic vessels. It does not depend, however, upon the extent of the chancroid. One or more glands may be affected. Buboës are more apt to occur in cases where the treatment of the ulcer has been neglected, and may develop at any time during the course of the venereal ulcer, even weeks after its cicatrization. Buboës are rare in women.

SYMPTOMS.—The superficial glands below Poupart's ligament are involved when the ulcer is situated on the genitals. The glands in either or both groins become enlarged, matted together and painful, the pain being exaggerated on walking. At the same time the skin over them assumes a red and brawny appearance. Suppuration of the glandular mass soon begins, and fluctuation is noticed. Finally it changes into a large abscess-cavity. If not incised, the capsule of the gland ruptures spontaneously, leaving a deep sloughing pocket with broken down and undermined edges, thus constituting a typical chancroid.

DIAGNOSIS.—The Syphilitic Bubo follows a hard chancre or a mixed sore and is often accompanied by general adenopathy by the time the case is presented to the surgeon. It is perfectly circumscribed, movable upon the sublying tissue and presents a peculiar hard, woody or bone-like feel to the touch. It is hardly ever painful. Suppuration is rare, and when it does occur, is due to such

complicating circumstances as inflammation of the primary sore, mixed infection, trauma, cachexia, struma, or tuberculosis, and the pus thus produced is never autoinoculable, save in the case of a mixed sore, in which the virulent element, imparted by the chancroid is responsible for its auto-inoculability.

A simple inflammatory bubo may be caused by erysipelas of the lower extremity. An inflamed corn is often the cause of inguinal or femoral adenitis, and when due to an infected wound of the leg or foot, the gland lying beneath the saphenous opening is frequently affected, while the chancroidal virus rarely involves this gland.

Too much care cannot be taken to ascertain the atrium of infection in all cases of bubo. It is impossible to overestimate the importance of this in cases of suspected syphilis.

The chancroidal bubo does not differ from that incident to gonorrhea, except that it is usually more virulent.

Strangulated hernia and orchitis, or epididymitis, attacking an undescended testicle, may at first glance suggest bubo. In the one case, characteristic symptoms of hernia will be present; in the other an examination of the scrotum will show absence of the testicle and suggest the possibility that the symptoms are due to inflammation of this organ or its epididymis.

PROGNOSIS.—When incised early most buboes heal rapidly except in the aged, debilitated and strumous.

TREATMENT.—It is hardly necessary to mention the preventive treatment of this condition, which would be the proper treatment of the preceding chancroid—which has been given.

If seen early, say during the first three days of the development of the bubo, the abortive treatment may be tried, or, in other words, we try to prevent suppuration. This is occasionally successful by means of rest in bed and the application of pressure, using a shot-bag, weighing about five pounds. A better plan is to apply a firm spica bandage over a compressed sponge, laid upon the bubo, the sponge being subsequently kept wet with cold water. A very firm and equable pressure is exerted upon the tumor as the sponge swells, and besides there is the antiphlogistic effects of cold. At the same time the bowels should be purged by the use of magnesium sulphate. Internally, calx sulphurata, one-tenth grain every two hours, has proven a valuable anti-suppurative agent, and no doubt assists in abortion of the adenitis. The application of counter irritants, such as tincture of iodin, or compound iodin ointment, or mercurial ointment, with a spica, are popular and sometimes useful. The injections of bichlorid of mercury and carbolic acid solutions have not been

very successful in aborting buboes. Poulticing is not advisable, as it lowers and often destroys the vitality of the healthy skin surrounding the adenitis.

In spite of the counter-irritants and other treatment, the glands usually fuse together, break down and suppurate, thus forming an abscess which must be treated either by evacuation of the pus or by free incision, with removal of all of the infected glands.

First Method.—If the chancroidal adenitis cannot be aborted in forty-eight hours this operation should be done, as often the process is very virulent and to delay is dangerous. The advantage of this plan is that it leaves practically no scar, nor is it necessary for the patient to take an anesthetic or remain in bed and be subjected to a painful and tedious convalescence. The steps in the operation are as follows:

1. The operative field is shaved and made surgically clean in the usual manner.
2. A few drops of a 4-per-cent solution of cocain are injected beneath the skin, where the puncture is to be made, or some carbolic acid brushed over it.
3. A straight, sharp-pointed knife is then thrust into the most prominent part of the bubo until pus flows.
4. Press the pus out firmly and gently through this opening.

5. The abscess cavity is irrigated with hydrozone (50 per cent strength) until it returns practically clear, or with bichlorid of mercury solution (1 in 5000), and the fluid squeezed out carefully.

6. The small, thoroughly-cleansed abscess cavity is completely packed with iodoform gauze, covered with a gauze compress and held in place by a spica.

The patient should rest for a day or two, preferably in bed. The dressing is removed on the second day and the parts examined. If pus has reaccumulated, the irrigation should be repeated. If, on the other hand, all looks well, the first dressing is replaced by a gauze pad and spica bandage. This dressing should be changed daily. If this method fail to accomplish the desired result (and it will likely fail in too advanced cases and in strumous, anemic or debilitated patients), an incision should then be made and the contents of the bubo removed, the previous treatment not having interfered in any way with this second operation.

Second Method.—The field is shaved and rendered aseptic and the patient chloroformed. A long, clean incision is then made over the most prominent part of the mass and parallel with the inguinal fold. The broken-down, suppurating glands are thus exposed, and every one of them removed, great care being exercised not to wound the femoral vessels or their branches. Bleeding

points are caught and ligated. The abscess cavity is thoroughly irrigated with peroxid of hydrogen, or better, with hydrozone. The hydrozone answers instead of cauterization with more powerful irritants or antiseptic substances. The clean wound is then dusted with iodoform and packed with iodoform gauze, over which is placed the usual sterilized gauze and cotton dressing. No attempt at suturing should be made in these cases, on account of the inflamed and infiltrated condition of the tissues. The cavity, when left free to drain, will, under the proper treatment, granulate quite rapidly from the bottom and no sinuses result, as is often the case when the wound has been sutured and primary union secured only at a few points.

In severe cases, where the pus has burrowed up on the belly or down the thigh, it is well to combine a vertical with the transverse incision for the purpose of better drainage.

PHIMOSIS AND PARAPHIMOSIS.

These have been considered under the complications of acute specific urethritis.

GANGRENE AND SLOUGHING.

If the chancroid extend and become serpiginous, threatening the destruction of surrounding tissues, cauterization, alone, may not suffice. We are at times forced to resort to more radical measures, such as the actual or electro-cautery, excision, or

even amputation. This extreme treatment is often necessary in debilitated, aged, anemic or strumous patients. Meanwhile a nutritious supporting diet should be enjoined, with the administration of tonics, such as iron, quinin, strychnin, etc.

PART III.

Syphilis.

CHAPTER XI.

SYPHILIS.

Syphilis, also called "Bad-Disorder," or Lues, is a constitutional disease due to a general intoxication from toxins. It enters the system by means of the blood and lymph vessels, the toxins attacking first the connective tissue; in its course it may affect every tissue and organ in the body. The connective tissue cells increase in number and new tissue develops, called granulation, or gummatous tissue; this is composed of lymphocytes and leukocytes.

Dr. Lustgarten, in 1884, discovered a bacillus in two cases of initial lesion and a syphilitic gumma. This bacillus resembles a curved rod and is found in the centre of nucleated cells. It cannot always be detected in the lesions.

Syphilis may be either acquired or inherited.

1. *Acquired Syphilis*.—This is communicated by an individual suffering from the disease to another free from it, the site of inoculation being always marked by the initial sclerosis.

2. *Hereditary Syphilis*.—This is transmitted in utero, from either one or both parents, and has no initial lesion.

Syphilis attacks an individual but once.

Cases of re-infection are very rare, still a few authenticated cases are on record.

ACQUIRED SYPHILIS AND ITS COURSE.

In order to facilitate the study of the disease, it has been divided into three stages, i. e., Primary, Secondary and Tertiary; but it should be borne in mind that it is a continuous process. We often see tertiary lesions occurring in the so-called secondary stage and vice versa, showing that the disease is not always limited to well defined periods.

The Primary Stage.—It consists of two periods of incubation. The first period dates from the time of infection to the time of the appearance of primary sclerosis or chancre, which varies from fourteen to thirty-five days, the average time being three weeks. There are cases reported in which the initial sore appeared as early as ten days and as late as ninety days.

The second period of incubation dates from the formation of the chancre to the outbreak of constitutional symptoms, occupying from forty to fifty days. These two periods constitute the so-called Primary Stage, the total duration of which is fifty to eighty days. *The chancre is always present in acquired syphilis*, but it may be concealed from ordinary observation.

The lesions of the primary stage are: (1) Initial sclerosis or chancre; (2) glandular involvement in relation with the sore.

The stage of constitutional manifestation or the so-called *secondary period* now begins. It is char-

acterized by superficial lesions of the integument and mucous membranes, enlargement of the lymph glands, the spleen and liver, and affections of the eyes. The nervous system is also implicated, as seen in the different neuralgias, muscular pains, headache and insomnia. There is also febrile disturbance, which is worse at night. This stage lasts from one to two years, depending, of course, on the treatment, the habits and constitution of the patient and individual idiosyncrasies.

The *tertiary stage* begins about the end of the second year, and is characterized by affections of the nervous system, the osseous system and viscera. Nodular, gummatous, bullous and ulcerative lesions may appear during this stage.

SOURCES OF CONTAGION.—The secretion of the chancre is very contagious as well as the secretion from mucous patches. The lymph and blood are contagious during the secondary stage. The tears, saliva, milk and perspiration are innocuous, unless contaminated with the blood or secretion from primary or secondary lesions. The spermatic fluid is harmless to mucous membranes, but may transmit syphilis to the ovum. The secretions during the tertiary stage are harmless.

The modes of infection are: (1) Direct; (2) Mediate.

Direct Infection occurs during intercourse from the genitalia of one person to those of another.

The virus may be transmitted by kissing. Obstetricians, surgeons and dentists may be infected, especially on the fingers, and great care should be exercised in operating upon syphilitics.

Mediate Infection takes place when the syphilitic virus is transferred to a healthy person by means of some article, such as pipe, cigar, pencil, toothbrush, razor, towel, handkerchief, eating and drinking utensils, surgical instruments and dressings. Glass blowers are very liable to become infected on account of the same pipe being used by a number of men. Syphilis, acquired by mediate infection, is called *unmerited*, or *innocent* syphilis. Whatever the mode of infection may be, the disease pursues the same course. In both instances the infectious atrium is marked by the initial sclerosis.

PRIMARY SCLEROSIS OR CHANCRE.—This is also called the hard or indurated sore, Hunterian chancre or the initial neoplasm. It appears usually three weeks after coitus and is situated at the point of entry of the syphilitic poison. As a rule the chancre is single, but may be multiple. If more than one exist, inoculation has occurred simultaneously at different points, and therefore they will be in the same stage of development. The ulcer is usually found on the genitals, but may be situated on any portion of the body, as the fingers, breast, tongue, lips, eyelids, conjunctiva, anus, rectum,

etc.; when found in any of the latter situations, it is termed an *extra-genital* chancre. The lymphatic glands in immediate relation with the sore are the first to become enlarged and indurated.

The chancre may have any of the following forms: (1) The Simple Ulcer; (2) the Silvery Macule; (3) the Dry Papule; (4) the Follicular Chancre; (5) the Sloughing Nodule; (6) the Ecthymatous Chancre.

The Simple Ulcer.—This is the most common form, and starts as an insignificant abrasion, red in color at first, but later changing to a coppery color. It is smooth and the secretion is serous in character.

The Silvery Macule.—Is usually situated on the glans penis, or near the meatus. In size it varies from a pin-head to a pea, and is silvery white in color, as if touched with carbolic acid. It increases but slowly and assumes the smooth appearance indicative of chancre.

The Dry Papule.—As the word signifies, it is dry in nature, but soon becomes converted into an ulcer.

The Follicular Chancre.—Is very rare, beginning as a small erythematous elevation, with a depression in the center.

The Sloughing Nodule.—Is also very rare, and is usually situated on the glans and behind the

corona. It is attended by necrosis of the entire mass.

The Ecthymatous Chancre.—This is covered by a crust of greenish-brown or black material due to irritation.

No matter what form the lesion takes, it ultimately changes into a superficial ulcer, with sloping margins, a smooth floor, serous secretion, surrounded by an indurated areola. The tissue beneath it feels like cartilage, or has a shotty feeling. The induration is quite typical about fourteen days after the appearance of the sclerosis, and is due to a deposit of granulation tissue, non-inflammatory in character. The amount of induration varies, being dependent upon its situation, thus it is well-marked beyond the corona and within the urethra. The induration, as a rule, lasts until the chancre is healed.

The chancrous secretion is serous in nature, unless the sore becomes infected, when it assumes a purulent character.

The duration of the chancre varies, depending upon the constitution of the individual and the treatment. It may remain stationary until the development of the secondary stage. The site of the chancre, after its disappearance, is marked by a purplish spot gradually fading away. The lymphatic glands in the immediate vicinity become hard, about fourteen days after the first appear-

ance of the chancre. They are painless, movable, and do not suppurate unless the ulcer be infected with pyogenic material. The integument overlying the glands is normal.

The glands affected in chancre of different parts are as follows:

| LOCATION OF CHANCRE. | GLANDS AFFECTED. |
|--------------------------------|-----------------------------|
| Genitalia and their integument | Inguinal glands. |
| Chin and lips | Submaxillary. |
| Tongue | Subhyoid and sublingual. |
| Eyelids | Pre-auricular. |
| Fingers | Epi-trochlear and axillary. |
| Arms and breasts | Axillary. |
| Anus and rectum | Inguinal. |

The differential diagnosis between chancre and chancroid is shown by the following table:

| CHANCRE. | CHANCROID. |
|---|---|
| Period of incubation about twenty-one days. | No definite period. |
| Looks like a simple erosion. | Excavated and "punched-out" in appearance. |
| Margins are sloping. | Margins undermined. |
| Floor smooth, shiny and red. | Floor rough, worm-eaten and yellow. |
| Secretion serous. | Secretion purulent and auto-inoculable. |
| Feels like cartilage and sharply defined. | No induration, but surrounded by a zone of edema. |
| Lymphatic glands in the immediate vicinity are indurated, painless, movable and do not suppurate. | Lymphatic glands, if involved, are inflamed, painful, matted together, and usually suppurate; the skin over them being hot, red and tender. |
| The tissue surrounding it is purplish in color. | Tissue surrounding it is bright red in color. |

THE SECONDARY STAGE.

This is characterized by the appearance of cutaneous lesions called syphilodermata, or syphilides, and constitutional disturbances, such as neuralgia, myalgia, headache, fever, insomnia, anemia, etc. The fever is most marked in nervous individuals and in women. It is either remittent, intermittent, or continuous, higher at night and just before the outbreak of the eruption. After the latter has appeared, the fever subsides and the patient has chills and perspires. Quinin has no effect in such cases. The different pains and headache are usually more severe at night. Insomnia is more marked in neurotics and women.

Anemia is usually met with in debilitated subjects, the red blood corpuscles being considerably decreased in number, while there is at the same time a pronounced leukocythemia.

The mucous membranes and the skin are very predisposed to irritation, so that a slight abrasion may heal very slowly. Hypoesthesia may occur in women and last several months. Jaundice is also seen during this stage and is due to a congestion of the mucosa of the common bile duct.

THE SYPHILIDES.—These comprise the manifold eruptions appearing at any time during the course of syphilis, and are due to localized hyperemia and cell-infiltration. The hyperemic lesions belong to the early stages, while those due to cell-

infiltration mark the later stages. The infiltration cells are small, round, granular and nucleated. The syphilides are not attended by pain or itching, except when they degenerate or are situated within the natural folds of the skin, as for instance in the axilla or between the buttocks. Their duration depends upon their early recognition and proper treatment. The varieties of these lesions are numerous, many of which may be present at the same time. They vary in color from a pinkish-red to a "lean ham," or coppery color. The color is due to a deposit of pigment in the rete-mucosum. Macular and papular syphilides are circular in form.

Macular Syphilides.—This form is also known as syphilitic erythema or roseola. This eruption usually appears first in all cases of syphilis, but may be so faint as to escape ordinary observation. The spots are either round or oval, hyperemic, and one-tenth to one-fourth of an inch in diameter. The color is pink, and sometimes purplish, the latter being the case when the patient is exposed to cold. When alcohol is applied to the surface of the skin the rash becomes more prominent. The macules at first disappear under pressure, but later in the disease they are permanent, especially in neglected cases. Their favorite site is near the umbilicus, gradually spreading over the trunk and extremities, especially on the flexor surfaces. On

the soles and palms they are very persistent and often scaly. On the back the lesions follow the obliquity of the ribs from the median line. When occurring on the scalp they are attended by alopecia. When on the face the rash is more marked near the nose, mouth, chin, and especially at the margin of the hair on the forehead, where it constitutes the "corona veneris." On the face the eruption is usually covered with fine scales and yellowish crusts.

Periostitis, involvement of the bones, and affections of the nails may accompany the facial eruption. Iritis may occur at this period. The duration of the macular syphilide depends upon the amount of hyperemia and treatment. They are very apt to recur. The macular syphilides should not be confounded with scarlatina, measles, rubeola and drug rashes.

Papular Syphilides.—These are due to cell-infiltration into the corium. Two varieties are known, the *conical* and *flat*. They vary in size from one-eighth to one-fourth of an inch in diameter, and their color is that of lean ham. Scaling may be present, but there is usually no pruritus or pain. When on the hand they may become fissured and painful, with thickening of the epidermis. The nails may become brittle and thickened, and the epidermis of the palms and soles may undergo cornification, this being called "syphilis cornua."

Pustular Syphilides.—These occur during the secondary period, varying in size from a pin's head to a dime. They are oval in form and have a lean-ham margin. They usually begin as papules and gradually cover the body. They rupture and become covered with greenish-brown crusts, beneath which there are well-marked ulcers, having a thick purulent secretion.

Rupia.—These consist of ulcers covered with laminated crusts. They usually occur during the tertiary period and consist of two varieties, i. e., (1) where the crusts are small and scattered; (2) where they are large, less plentiful and grouped. Beginning as a papule, it soon changes into a flat pustule, which finally becomes covered with crusts beneath which is an ulcer. The crusts pile up and become laminated.

The favorite site is the face and forearms, next in order the trunk and shins. *Rupia* leaves scars, which are white, shiny, depressed and surrounded by a zone of pigment.

Bullous Syphilides.—These are due to an effusion of serum beneath the epidermis. The serum soon becomes viscid and purulent. It usually involves the forearms and legs, and occurs very late in the disease.

Nodular Syphilides.—They are late manifestations, which are accompanied by ulcers and gummatous lesions.

THE HAIR.—Loss of hair, or alopecia, is a very common symptom. It is rarely permanent and unattended by itching or burning. Cutaneous lesions are rarely present on the scalp. The eyelashes and beard are sometimes attacked. Syphilitic alopecia consists of two varieties, viz.: (a) Alopecia simplex; (b) alopecia areata.

By alopecia simplex is meant a general thinning of the hair, and by alopecia areata a loss of hair in patches. Alopecia is a very early symptom, but may occur as late as the end of the second year.

Etiology.—It is due to an impairment of the hair follicles by the syphilitic toxin, which causes malnutrition. If the hair follicles ulcerate, then permanent baldness results.

The prognosis in alopecia is favorable, provided the loss is circumscribed and the patient receives proper treatment.

THE NAILS.—They may become thick, brittle and fissured, the surface being marked by rough, uneven depressions. They belong to the late manifestations.

MUCOUS MEMBRANES.—Hyperemia of the mucous membranes is very common. In advanced cases the epithelium becomes detached, abrasions result, which are accompanied by edema.

Mucous patches, or moist papules, consist of flat pearl-colored elevations. They resemble mucous

membrane, and are highly contagious. Their most common location is the inner surface of the cheeks, but they may also be found upon the lips, at the angles of the mouth, upon the tongue, gums, uvula, hard and soft palate, pillars of the fauces and the conjunctiva. They occur very early and are the most frequent secondary manifestations.

The lesions are due to cell-proliferation of the mucosa and their papillæ, and, at times, they undergo ulceration. They are more exuberant when attended by uncleanness, irritation, heat and moisture, or when the patient uses alcohol or tobacco. Sometimes there is pruritus and pain. When occurring in the mouth, they are pearly in color, as if touched with silver nitrate or carbolic acid, irregular in form, and not elevated. When situated on the tonsils and pharynx, they usually ulcerate. Bad teeth may cause a recurrence of the mucous patches.

CONDYLOMATA.—They resemble mucous patches, the usual site being the integument around the anus and genitalia. They are oval and disc-shaped, single or multiple, of a reddish-gray color, granular in appearance and elevated above the surface. They begin as small red macules which rapidly desquamate, leaving behind a moist grayish-red surface. This, finally, becomes converted into a papilloma, with an offensive and highly contagious discharge.

THE DIGESTIVE ORGANS.

1. *Mouth*.—Erythema and mucous patches have been mentioned; besides these, abrasions are often seen near the angles of the mouth, especially in smokers.

2. *The Tongue*.—The same lesions may appear as mentioned above, and sometimes fissures and gummatous lesions in the later stage. Chancre of the tongue is rare, but is occasionally seen, and when present is usually situated at or near the tip. It is single, indurated, and the lymphatic glands, in anatomical relation with it, are enlarged. These lesions should not be confounded with tubercular ulcers of the tongue, which are very painful, multiple, with beveled margins, flabby granulations, and soft in consistence. Of course the microscope will reveal tubercle bacilli.

3. *Necrosis of the Maxillary Bone*.—With this the hard palate and the osseous framework of the pharynx may be involved. It is always attended by the formation of extensive cicatrices. Concomitant with it there is anorexia, nausea and reflex vomiting.

4. *The Esophagus*.—Ulceration of its mucous membrane sometimes occurs, resulting in scars, thus forming stricture of the tube, interfering with deglutition and proper nourishment of the patient. He becomes emaciated and feeble, and often succumbs to marasmus.

5. *The Stomach and Intestines*.—In the early stages there is a sympathetic, functional disturbance of these organs, such as loss of appetite, nausea, vomiting, diarrhea, etc. The mucous membrane may ulcerate,—possibly due to degeneration of gummatous deposits.

6. *The Rectum* may be attacked, resulting in edema, infiltration, or inflammation. Stricture of the rectum may follow any of these conditions.

7. *The Liver* is invaded by syphilis oftener than any other abdominal organ. Congestion of the liver is usually associated with the cutaneous eruption, and generally lasts several weeks. The symptoms are jaundice, gastric disturbances, and fever. The organ is sensitive on pressure. The condition is likely due to extension of specific catarrh of the intestine to the liver by the common bile duct; or the toxins in the blood may cause it.

The late lesions of the liver are: (1) Amyloid degeneration; (2) hepatitis; (3) peri-hepatitis.

The symptoms in these lesions are often obscure. The liver is increased in size and nodules can be felt upon its surface. Pain may be absent or present. The function is not interfered with unless the tumors are numerous.

In severe cases jaundice, gastro-intestinal disturbances, and clay-colored stools are noticed.

8. *The Spleen*.—In rare cases enlargement of spleen occurs early in the course of syphilis. The

swelling is rapid, but usually painless. It generally subsides in three or four weeks, but is liable to recur.

9. *The Pancreas*.—Specific affections of this organ are rare. Cases of pancreatic involvement, however, are on record.

THE RESPIRATORY ORGANS.

1. *The Nose*.—Syphilitic rhinitis is common, as well as mucous patches and ulceration. The symptoms are those of an ordinary coryza. In the tertiary stage deeper ulcerations occur, due to gummatous deposit in the areolar tissue, and may ultimately attack the cartilage and bones, leading to great deformities.

2. *The Larynx*.—The lesions here are very variable and consist of erythema, mucous patches, ulcerations and vegetations. In the later stages gummatous ulcerations may lead to stricture, resulting in an impediment to respiration. Sometimes the patient is threatened with edema of the larynx. Necrosis of the cartilages may also occur and permanent deformity result.

3. *The Trachea*.—Lesions of the trachea are very rare and are similar to those which attack the larynx. Gummatous lesions are the most common, leading to stricture, from contraction of the cicatrices. The symptoms are cough, dyspnea and purulent sputum.

4. *The Bronchi and Lungs*.—The syphilitic

lesions found in the lungs consist of gummy tumors and indurations. Gummy tumors resemble those of other organs and are either single or multiple. They are rare, but occur oftener than the indurations. They degenerate from the center outward, leaving cavities with fibrous walls.

Syphilitic induration usually affects a small part of the middle or lower lobes and may be disseminated at various points. The diseased portion becomes hard, elastic and furrowed, while the bronchi are flattened and the surrounding pleura somewhat thickened.

Syphilitic lesions of the lungs occasionally cause no symptoms; sometimes a slight disturbance of respiration is present, and again, cough, pain, expectoration, and a slight temperature are noticed. Most of these cases yield readily to specific treatment, if tuberculosis be not present.

In the secondary stage some effusion into the pleural cavity often occurs, associated with more or less rise of temperature and pain in the chest.

SYPHILIS OF THE CIRCULATORY ORGANS.

1. *The Heart*.—Endocarditis may occur about the end of the second year, and is most frequently confined to the left ventricle and its apex. Gummatus tumors may attack the heart in any or all the parts. Myo- and peri-carditis are usually associated with endocarditis. There is tachycardia;

palpitation and dyspnea, and, at times, severe pain and angina are present.

2. *Blood Vessels*.—Arteritis of the smaller vessels, especially those of the brain, is apt to occur during the secondary period. Severe headache, paralysis and coma, aphasia and spastic palsy characterize this condition. If the carotid artery be affected, epileptiform attacks may ensue. The deposit of a new dense cellular infiltration of the inner coat of the arteries may lead to thrombosis and subsequent embolism may produce cerebral hemorrhage. In other cases, the two outer coats may become involved by the deposit of gummata.

SYPHILIS OF THE GENITO-URINARY ORGANS.

1. *Epididymo-orchitis*.—This is apt to develop during the first six months of the disease. It is oftener unilateral. The organ becomes enlarged, hard and heavy, without any pain. There is more or less hydrocele of the tunica vaginalis. The lesions consist of smooth, hard, oval tumors, showing no tendency to degenerate and disappearing under antisyphilitic treatment. As a general rule suppuration does not occur. The vas deferens remains normal in syphilitic orchitis; this is also true of the seminal vesicles and the prostate.

2. *The Penis*.—Syphilitic deposits may occur in the sulcus, behind the glans and in the corpora cavernosa. The organ gradually increases in size

and may lead to deformity, especially during erection.

3. *The Ovaries*.—The ovaries may be the seat of syphilitic affections. Slight pain and an increase in size is noticed. Sexual desire is absent, and sterility may eventually follow. Hypertrophy of the cervix and hardening of the os uteri may also be present, which results in ulceration, the secretion being highly contagious, scanty and mucus in character. This is a very early symptom and responds readily to constitutional and local treatment.

4. *The Kidneys*.—Interstitial nephritis is sometimes met with as well as gummy tumors. Cicatrization may result from the preceding conditions.

SYPHILIS OF THE NERVOUS SYSTEM.

The Nervous System may be affected as early as the third month, and as late as twenty years after the syphilis appeared. These affections of the nervous system are more apt to occur in neurotic subjects and those addicted to alcoholic excesses. Lesions on the inner surface of the skull or vertebrae may by pressure cause inflammation of the meninges and secondary changes in the brain or cord. The lesions are nodes, exostoses, or necrosis. The dura mater is very susceptible to inflammation after an attack of syphilis, and the inflammation readily extends to the arachnoid and pia-mater.

Tumors of the nervous system following syphilis occur and are usually connected with the cerebrum. Hemiplegia and epilepsy sometimes result. Paraplegia is the result of lesions of the vertebræ of spinal meninges and gummata which press upon the cord.

Locomotor Ataxia.—About 75 per cent of all cases of this disease result from syphilis. It is usually a late manifestation, and met with in those who have not received careful, prompt and vigorous medication. The symptoms and course of the disease are the same as when due to other causes.

SYPHILIS OF THE MUSCLES.—The muscles, tendons and their sheaths, the aponeurosis and bursæ may be affected, taking on the form of hyperemia, or, later on, gummata.

SYPHILIS OF THE OSSEOUS SYSTEM.—Osseous lesions usually appear late and are not always true syphilitic lesions, syphilis only being the predisposing cause. The bones of the cranium, ribs, sternum, clavicle, the tibiæ, are most liable to be affected early. Of the skull, the frontal and parietal bones are the ones usually attacked. The nodes or swellings vary in size. The late bone lesions do not appear in every case. Osteitis, osteomyelitis and periostitis are sometimes seen.

Soft tumors form, attached to the bone, but not to the skin, and are very painful, especially at

night. Such tumors are called "nodes" and undergo resolution, or else the skin becomes red, thin and adherent to the tumor, which breaks down into an ulcer.

THE JOINTS.—Are often involved and there may be synovitis. In this form of synovitis, there is effusion into the joint and effusion and thickening of the synovial membrane.

SYPHILIS OF THE EYE.

1. *The Conjunctiva*.—It may be the seat of nodular gummatous infiltration. The initial sclerosis is sometimes situated here. Secondary ulceration may occur near the corneal margin.

2. *The Cornea*.—Parenchymatous keratitis is accompanied by a varying amount of conjunctival injection and grayish opacity of the cornea. Photophobia, pain and lachrymation may be present. Keratitis is usually met with in young children and is generally due to hereditary syphilis.

3. *The Iris*.—Iritis is the most serious affection of the eye, usually appearing during the secondary period and sometimes much later. There are three varieties, viz.: (1) Simple; (2) serous; (3) suppurative.

In Simple Iritis there is congestion of the iris and injection of the conjunctiva and sclerotic vessels. The color of the iris is changed and it reacts but slowly to light. The pupil may become irregular in shape.

Serous Iritis is due to excessive secretion of turbid aqueous humor. Dilatation of the pupil is quite common and is due to pressure.

Suppurative Iritis.—In this there is edema of the membrane and increase in its connective tissue elements. Pus is produced rapidly and abundantly in the anterior chamber. Pain and photophobia are severe and vision is always interfered with. If early and proper treatment be adopted, the eye may become normal, but in neglected cases permanent adhesions form with pupillary impediment.

SYPHILIS OF THE EAR.—Otitis media is the most frequent syphilitic affection of the ear, on account of the intimate relation of the middle ear with the throat, from which the process may extend. The mastoid cells may also be involved in ordinary suppurative inflammation of the middle ear. Gummata and exostosis of the osseous tissue of the ear may cause impairment of hearing in the late stage.

When the labyrinth is affected, there is usually a feeling of fulness in the ear; the patient has a staggering gait and complains of vertigo.

PROGNOSIS OF SYPHILIS.—Patients otherwise healthy experience very little trouble with syphilis, provided they have proper treatment for a sufficient length of time and live regular lives. Subjects with light complexion and reddish hair suffer

most. It is generally very severe in old age and in nervous, excitable subjects. Intercurrent diseases, especially tuberculosis and alcoholism, render the prognosis less favorable. A long period of incubation indicates a mild attack, and so do a superficial chancre and erythema.

The following indicate a severe attack: (1) Short incubation period; (2) deep ulceration and great induration of the chancre; (3) papular and pustular syphilides; (4) persistent, enlarged glands.

In a great many cases the disease tends to self-limitation, but one cannot always tell which case will do well, and which one badly.

GENERAL REMARKS ON TREATMENT.

Energetic and continuous treatment should be employed throughout the contagious stage of the disease and interrupted treatment during life, in order to procure immunity against the formation of lesions and prevent injury to the tissues in any part of the body.

We have been too much governed by tradition in syphilis, as well as in many other things in medicine. We have been trying to recognize primary, secondary and tertiary stages. If the secondary stage were not present, we would doubt that the case was syphilis. We have been expecting to have certain distinct lesions and sequence of

lesions. The sequence takes place in the great majority of cases, but there are many cases in which the sequence has been irregular.

The aim of treatment should be to avoid or minimize dangerous structural changes in important organs, to give a benign character to the disease, and to leave the system in about as normal a condition as it is after such acute diseases as scarlet fever, variola, etc. The system should be left in much the same condition as a mother is left who has received immunity without receiving the specific organism from the fetus; not being able to acquire syphilis there is no manifestation of secondary or tertiary lesions.

Syphilis is an acute, infectious disease, with anatomical lesions, either visible or invisible, and general intoxication from toxins, and is capable of bringing about immunity directly or indirectly. It is of limited duration but yet a serious disease. In some acute, infectious diseases, as variola and typhoid fever, death results usually from intoxication by toxins. In others more chronic, that do not give immunity, as tuberculosis and leprosy, death usually results from injury to important organs in consequence of some inflammatory change. The pains in the muscles and joints, the general weakness and concurrent symptoms in syphilis, are due to the intoxication from the toxins and not from the organism direct. Great

stress should be laid upon this intoxication by toxins, notwithstanding a number of writers oppose this view. Syphilis is a serious disease because of the deformities which may cause fatal conditions, such as meningitis, myelitis, etc. Often where there are no lesions to be observed by the eye, the microscope shows changes in the tissues. The smallest amount of intoxication necessary for immunity may leave an impress on the tissues sufficient to show that the dyscrasia exists; the less intoxication, the less injury to the tissues. This is important to remember because often lesions occur, owing to tissue vulnerability, ten or twelve years after all the syphilitic poison has left the system, such as patches on the tongue, palmar syphilides, etc.

Textbooks have divided the disease into stages, but it should be looked upon as a continuous process. The length and severity of the attack are not dependent on the length of incubation nor on the character of the primary sore, except in a general way. The so-called secondary stage is ushered in by certain cutaneous manifestations: fever is present; the lymph glands, the spleen and liver are enlarged; the nervous system is affected, neuralgia being marked. The malignancy of the disease depends on the soil, not on the amount of inoculation, and dangerous conditions may exist without any severe external lesions being visible.

An important point in treatment consists in preventing, if possible, the untoward results of lesions by pushing the remedies. Although no outward signs are visible the toxins are sure to leave their impress on the tissues, and the absence of cutaneous lesions is no proof that lesions are not present in the internal organs and damaging them. The lesions of the skin are of slight importance as compared to those of the internal organs. Existing lesions should be treated to lessen the danger of contagion, to remove deformity, to save tissue, and to diminish the normal duration of the contagious stage. It is much better to prevent lesion formation than to wait until the lesions have formed and then commence treatment for their removal. During the contagious period, contagion may occur from the lesions, the blood, and probably from physiological secretions. To lessen the contagiousness is important.

Treatment should be directed toward diminishing the amount of the virus produced, and to aid in its elimination or to render it innocuous as long as the organisms are present. Besides, the lesions should be removed. The life activity of the organisms may be greatly lessened, if not removed. As far as is known now, only two drugs have any special action on this disease—mercury and the iodids. Mercury is directly antagonistic to the organisms. A solution of the bichlorid, of

one-thousandth per cent strength, added to a drop of pus from a chancre destroys the organisms. Potassium iodid will not do this, but it has the effect of aiding cell metabolism, and in some way or other assists in the elimination of the virus. The mercury should be pushed until the gums are touched. If it is not pushed to this extent, there is no proof that enough has been given to produce its physiological effect. It is necessary to keep the mouth in good condition. Smoking should be prohibited and the teeth kept clean. The mercury has perhaps the best effect and is least harmful when given by inunction. If prompt action be required this is the best mode of administration. Contraindications to this mode are where there is too much adipose tissue or in persons with tender skins. During treatment an important point to remember is to prevent irritation of any part of the body or the over-determination of blood to any particular part. This tends to prevent the formation of lesions. Hence a student should not read too much; and care should be taken, by those whose work exposes them, to avoid injury.

Regarding the initial sore, its character is not a positive guide as to the prognosis. As far as intoxication is concerned, there is no doubt that a large lesion is a hotbed of infection. A better guide to go by is the character of the soil. Also bear in mind that a patient in excellent physical

condition, with a pea-sized chancre, with little signs of breaking down, may get very soon in a bad condition, if such precautions as the avoidance of alcoholic beverages and the like be not enforced.

Can syphilis be aborted by treatment of the primary sore? It takes about twenty days after infection for the primary sore to form, so as to be recognized. It takes about ten days for the inguinal glands to enlarge; hence ten days before the sore is recognized there is infection of the glands, so it is evident that it would be useless to excise the primary sore. This does not counteract the view held, that if there be a hotbed of infection one can diminish the size of the sore and make certain applications to inhibit the action and life of organisms, the amount of intoxication from this hotbed will be lessened; but it is useless to excise the primary sore for the purpose of aborting the disease. This proves that it is a continuous process, hence treatment should commence at once. The appearance of the secondary eruptions should not be awaited; enlargement of the inguinal glands is sufficient. Some persons suffer more than others in the so-called secondary stage. The soil accounts for it. Persons with a lowered condition of health suffer more than the robust, hence the latter condition should be maintained if possible. Good hygiene, food of the proper quality and quan-

tity, and the avoidance of excesses should be enjoined. A good action of the excretory organs favors the elimination of the toxins.

Mercury has an inhibitory action on the life of the microbes, perhaps killing many of them, as shown by the experiment mentioned. Judging from clinical experience, it is not possible to kill all of the organisms in the body; they are scattered throughout the whole system.

Their action may be inhibited, their toxins lessened, and it is possible to postpone, or entirely prevent, the formation of lesions. If the secondary lesions are entirely prevented during the so-called secondary stage, treatment after that is unnecessary. This stage is present, although one may see no cutaneous lesions. It is not correct to put the patient under active treatment for thirty days and then allow him to go untreated until symptoms reappear, as a reappearance of the signs means serious injury. In this sort of treatment one is simply repelling attacks not carrying on offensive warfare against the organisms. Such treatment will materially increase the danger of tertiary lesions. Antisymphilitic treatment after the contagious stage aims at the prevention of gummatous formation. For this mercury combined with the iodids is the treatment.

Gummata should not be regarded as syphilitic lesions. Syphilis is just a predisposing factor.

Energetic and continued treatment is called for in treating these tertiary lesions. Mercury may be given for a certain length of time, but will lose its action and it is wise to change to the iodid.

The iodid aids the mercury in its action. One must be careful how he administers the iodid at this juncture, because it might loosen up too much mercury in the system.

Irritation lesions often occur late and may be seen on the lips and tongues of those who use alcohol. Another example is the occurrence of parasitic lesions on the skin. Such are the result of the dyscrasia—not of the syphilitic poison—and they are not cured by antisyphilitic treatment. Their removal is aided by giving that which will bring about a normal condition of the system. Such remedies as the iodid, which aids in restoring a proper action of the glands, will aid in the removal of such lesions. Locomotor ataxia and similar lesions come under this category.

The value of Hot Springs lies in keeping the system in a good condition. The system undergoes good cell metabolism, as ten minutes after taking a hot bath the patient's temperature usually runs up to 100° to 103° F., showing rapid cell metabolism. At home after such a bath there will, generally, be no elevation. Persons who have never taken syphilitic treatment go there, take no treatment except the baths and the lesions disap-

pear entirely, showing there were irritation lesions from within, and that they had nothing to do with the syphilis. The danger in the late stage is more from the lesion formation than from the intoxication.

A condition of the system should be brought about similar to that present in the mother who has obtained immunity through the fetus. The placenta, if in normal condition, acts as a filter and the mother does not suffer from the secondary or tertiary lesions. Where these lesions do occur in the mother it is only explained by some change in the walls of the vessels, so that the organisms pass from the fetus into the mother and cause lesion formations. The toxins give immunity and the person throughout life should have no syphilitic lesions of any kind; he is immune. So the object in treatment is to get this immunity, which could be insured without lesion formation, so that the tissues, as in the case of the mother with the syphilitic fetus, may escape injury. Treated on these principles, there are no reasons why syphilis should be a dangerous disease to persons affected; danger to others is almost entirely removed.

The disease itself is not only made less severe, but the lesions less frequent.

TREATMENT OF LESIONS.—*Chancre*.—The sore should be kept clean and protected. It should be

washed with bichlorid solution (1 in 2000) or hydrozone, 50-per-cent solution, morning and evening, and then absorbent gauze applied; the dressing should be changed every two or three hours and should always be destroyed after use. If suppuration exists, use iodoform or calomel, or black or yellow wash. If a thin film or membrane form upon the floor of the chancre, apply a little pure carbolic acid or nitric acid. If the foreskin be long and tight it may be wise to incise or circumcise. When the chancre is cicatrized the remaining mass of induration should be kept covered with 50-per-cent mercurial ointment, which will cause it to soften and disappear.

Indurated Lymphatic Glands.—Local inunctions of mercurial ointment, 25 to 50 per cent, should be applied. Rub a different group of glands every night. A more esthetic preparation is mercury vasogen in soft capsules.

Syphilides.—For the early eruptions mercurial ointments are generally used locally, for the later iodine or iodoform. For exuberant granulations the solid stick or silver nitrate, copper sulphate or the scissors are used.

Alopecia.—The local treatment consists of shampooing and rubbing in white precipitate, thirty grains to the ounce of cold cream at night.

Mucous Patches.—They should be touched, when in the mouth, on lips, cheeks, tongue or gums,

with the silver nitrate stick every second or third day. Equal parts of tincture iodine and carbolic acid are sometimes applied and prove very beneficial. When on the tonsils, palate, pharynx or larynx, use a spray of silver nitrate (15 grains to the ounce) or antinosine, 2 per cent. The patient should wash the mouth several times daily with bichlorid, 1 in 1000, or a gargle of potassic chlorate may be used. The mouth and teeth must be kept clean.

Condylomata should be kept clean and dry. Wash with hydrozone or peroxid of hydrogen, then dry and dust on calomel, or a powder composed of equal parts of boric acid, bismuth subnitrate and calomel. They should be separated from opposing surfaces by pieces of dry absorbent gauze.

INTERNAL TREATMENT.—Mercury is given during the early manifestations, and combined with iodid of potash, or sodium in the later ones. The hygienic condition must be looked after; the diet must be nutritious and the patient should be moderate in all things. Ale or claret are allowable in some cases. The bowels should move daily. Exercise in the fresh air and bathing are necessary.

In the early stage, when there is anemia, tonics such as iron, quinin, coca, kola or gentian should be given along with mercury. In the administration of mercury, be on the lookout for such disa-

greable complications as ptyalism, stomatitis, depression and impaired nutrition. Mercury may be given in the form of gray powder, 1 or 2 grains, three times a day, or protiodid, $\frac{1}{8}$ to $\frac{1}{2}$ grains, three times a day. Here is a good combination:

Hydrarg. protiodidgr. 8
 Ferri et quin. citrat.....dr. $1\frac{1}{2}$
 Ext. hyoscyamgr. 6

Ft. in pil. No. xxx. Sig.: One pill three times a day.

The patient should be kept on mercury for nine to twelve months, and then in most cases put on the "mixed treatment," a mixture like this:

Hydrarg. biniodidgr. 1—2
 Potass. iodidoz. $\frac{1}{2}$ —1
 Syr. aurantiioz. 1
 Essence pepsinoz. 4

M. Sig.: A teaspoonful in water one hour after meals.

Hypodermic Injections are useful where speedy action is required, or where mercury cannot be taken by the mouth. Bichlorid, 1-10 grain in ten drops of water, or calomel, $\frac{1}{4}$ grain in ten drops of water, may be used. The salicylate of mercury may be used in the same strength as the bichlorid.

There is danger of producing small abscesses and great care must be exercised.

Inunction.—It is the most efficacious mode of

treatment, and a 50-per-cent mercurial ointment should be employed. The part to be anointed should be rendered clean and the sebaceous material removed by washing the parts with alcohol. Always select a fresh portion of skin for each inunction, which prevents the development of dermatitis. This treatment is also indicated in syphilitic testes and the like. Each inunction should occupy thirty minutes and from 25 to 50 grains of ointment used. A very convenient and efficient preparation is mercury vasogen in soft gelatine capsules.

Eleven rubbings comprise one course of inunctions, corresponding to the different lymph regions of the body. Hairy parts should be rubbed with the white precipitate ointment, thirty grains to the ounce. The applications should be made every other night. When one course is completed the treatment should be stopped for one week.

Fumigation.—This is of great value in the late stage, where squamous, ulcerative or gummatous lesions are present. The vapor is best, generated from calomel, about thirty grains, and the purest should be used. The body should be washed before fumigation, which is usually given before retiring. A very convenient apparatus is Robinson's Thermobath (see Fig. 28).

Potassium Iodid subdues rather than cures the lesions, i. e., it assists in absorption. It is best

to combine it with mercury. The dose at first should be five to fifteen grains, three times a day, in water an hour after meals, and gradually increased. Some have taken 300 grains daily without any apparent ill effects. It should be well diluted in water, lemonade, milk or essence of pepsin. It may cause coryza, pain in the frontal sinuses, swelling of the eyelids, gastro-intestinal derangements, eruptions (papules, acne, etc.), and mental dulness.

Treatment of Salivation.—The first sign is soreness of the gums just behind the upper incisors, then a metallic taste in the mouth, fetid breath, increased flow of saliva and tenderness of teeth when closed upon each other. Sometimes the tongue swells and fever appears with general weakness. The mercury should be stopped and the bowels kept open by a saline cathartic. A gargle and mouth wash of potassium chlorate solution, 2 per cent, should be used often. If the flow of saliva be very profuse, small doses of sulphate of atropin should be given. Alum (1 dram to the pint) makes a nice mouth wash.

Duration of Treatment.—Treatment should be kept up, so long as any syphilitic manifestations remain, and for at least two years after infection. It may not be necessary to give mercury for more than nine or twelve months, but the patient should be under a physician's care for two to two and one-

half years. The late manifestations are dangerous, especially affections of the arteries and brain.

HEREDITARY OR CONGENITAL SYPHILIS.

With the exception of the chancre, every feature of the acquired disease may be seen in this form. In most cases the child is healthy looking when born, and signs of the disease appear within the first month or two.

SYMPTOMS.—If it exist at birth, the child is feebly developed and wasted, some skin eruption is usually present in the form of macules, or bullæ around wrists and ankles, or even hands and feet. The child snuffles, the lips are ulcerated and the liver and spleen enlarged. Bone symptoms may be marked, and in such cases the child rarely lives long.

Early Signs.—If born healthy looking, a nasal catarrh develops in four to eight weeks (rhinitis) called “snuffles.” The discharge is sero-purulent or bloody. Necrosis of bones leads to depression at the root of the nose and characteristic deformity. This extends to Eustachian tubes and middle ear, resulting in deafness.

Cutaneous lesions develop shortly after the onset of snuffles. An erythema or eczema appears about the nates. Fissures are noticed about the lips and the hair falls out. The glands are not so often enlarged as in the acquired disease. The child is restless and wakeful, especially at night.

Late Signs.—The child rarely thrives, and looks wasted and old. All the early signs are apt to reappear at the period of second dentition or puberty. The child grows slowly, and a young man of twenty may not be any more developed than a boy of ten or twelve. The teeth are deformed, the upper central incisors of the permanent set are peg-shaped, stunted and narrower at the cutting edge than at the root, and notched. The notch is at the cutting edge usually shallow, and the dentine is exposed. They are called "Hutchinson's" teeth.

The cornea is affected. Keratitis (or ground-glass appearance) is present. Iritis may exist.

Bone lesions usually appear after the sixth year, and the tibiæ are most often affected. Periostitis may result in great thickening. Gummata of liver, brain and kidneys have been found in hereditary syphilis. The death rate is high, and 30 per cent die before maturity.

TREATMENT OF HEREDITARY SYPHILIS.—A pregnant syphilitic woman should be put on mercurial treatment.

The infant should be treated carefully, as internal treatment may cause irritation and inunctions may irritate the delicate skin. Very often it is well to use the indirect method, i. e., treat by means of the milk of the mother, who takes the mixed treatment. The direct treatment of the child

should be intermittent; during the intervals give tonics to build up the general condition.

Internally, calomel 1-10 to $\frac{1}{2}$ grain, three times a day, may be given, or gray powder in $\frac{1}{4}$ to $\frac{1}{2}$ grain doses, which causes less gastro-intestinal irritation than calomel, but is not so uniform in its effects.

Protoiodid, 1-20 grain, may be given three times a day, mixed with sugar of milk or bismuth sub-nitrate.

Inunctions.—Mercurial ointment, 25-per-cent, may be used. Use 15 to 25 grains daily, according to age. The treatment should continue for about two years, and be continued for several months after all manifestations have disappeared.

SYPHILIS AND MARRIAGE.

At least three years should elapse between date of infection and contraction of marriage. There should be at least two years of complete absence of all signs of disease. If a man be syphilitic and must marry, then put his wife on treatment.

PART IV.
Sexual Diseases.

INTRODUCTION.

The majority of the diseases of the sexual system are psychoses rather than diseases of the genitalia proper. We are indebted for our knowledge of the various sexual maladies to the able writings and researches of Krafft-Ebing, Caspar, Westphal, Mantegazza, Lombroso, Caffignon, Havelock Ellis, Keyes, Lydston and others.

The authors of this work have limited themselves in the subsequent pages to a brief discussion of the physiology of sexualism (which has heretofore been totally disregarded in such works as the present one), together with a concise description of the most important morbid conditions comprising the subject under consideration. Hypothetical pathogenesis and etiologic conjectures have been entirely omitted. The topics on sterility and impotence have been dwelt upon somewhat at length, in order to enable the reader to gain a thorough acquaintance with the causes underlying them and to become conversant with the modern methods of treatment, as advocated by such painstaking observers and men of vast clinical experience, as have been enumerated above.

CHAPTER X.

PHYSIOLOGY OF SEXUALISM.

The desire of an individual to propagate his species is manifested in the sexual instinct, which is a *physiological process*. When this instinct reaches the epoch of sexual maturity, it becomes a *physiological law*. This, as well as the prestige of sexual desire manifested, varies in different individuals and races. Climate, heredity, and social conditions also play an important role in determining the force of the sexual instinct; thus, the difference in sensuality between the southern and northern is quite apparent. Development of the procreative function takes place earlier in the inhabitants of the tropical than in those of the temperate climes. Puberty in man makes its appearance about the fifteenth year, and is recognizable by a change in the voice, the growth of hair in the axilla, on the mons veneris and on the face, and by the occasional occurrence of nocturnal pollutions. As a general rule, virility reaches its acme at the age of forty-five, after which a gradual decline takes place; the generative potency, however, outlasts that of virility, and may continue until the age of sixty-five.

The sexual instinct in man is not intermittent as in animals, but is rather dependent upon the collection and expenditure of semen; it is a function

of the cerebral cortex, and has a special center, which, according to Ferrier, is situated in the gyrus uncinatus, in common with the olfactory center. Three factors are necessary in order to create a sexual desire, viz.: (1) an emotion; (2) an idea; and (3) an impulse. The development of the sexual instinct is to be ascribed to sensations arising from the continually progressing reproductive organs. These attract the attention of the individual. Experience and reading intensify these emotional sensations and convert them into ideas. The latter, aided by the former, lead to the impulse to fully experience them, to carry them out, and thus sexual desire is originated. A mutual dependence exists between the cerebral cortex—the seat of the origin of sensations and ideas—and the reproductive apparatus; the former conveying impulses to the latter, which is followed by hyperemia of the sexualia, resulting in seminal secretion, erection, and ultimate ejaculation. The latter phenomena are brought about by the aid of a second center, situated in the lumbar portion of the cord; it is a reflex center and is termed the “erection center,” an intermediate station between the cerebrum and reproductive organs. Emerging from this center, we encounter nerve fibers, which descend to the sexual apparatus; another set of fibers ascend, pass through the pedunculi cerebri and the pons, to be ultimately

lost in the cerebral cortex and sexual center. The latter is either excited by psychic or organic stimuli; by irritation set up in the peduncular tracts and the pons Varolii, the cervical portion of the cord, as well as by peripheral stimuli of the nerves supplying the penis, its adnexa, and the integument in their vicinity. The excitation produced either centrally or peripherally is finally conveyed to the *nervi erigentes* supplying the corpora cavernosa, the vessels of which dilate and become charged with blood. The return of the blood is impeded by the contraction of the bulbocavernosus muscle.

Reflex excitation of the center is possible under the following conditions: (1) Irritation of the peripheral nerves of the genitalia and their adnexa by friction. (2) Irritation of the urethra, as in urethritis; the rectum in hemorrhoids; the bladder in distention and calculi; overdistention of the vesiculæ seminales with spermatic fluid; hyperemia of the sexualia produced by lying on the back, which maintains intestinal pressure upon the pelvic circulation. It may also be induced by the irritability of the prostate in prostatism, and the excitation caused by catheterization. On the other hand, certain emotions and ideas may inhibit erection, or cause it to disappear when present; for instance, fear, joy, anxiety, surprise during the act of cohabitation, etc. The duration

of erection depends upon the exciting stimulus, the presence or absence of inhibitory influences, the energy of the center *per se*, and the time of ejaculation.

All stimuli are either visual perceptions and memory pictures, or tactile impressions. Olfactory perceptions possess a decided influence in creating sexual excitement; we observe this mostly in animals at their rutting period, during which the female emanates a characteristic odor, the male being attracted by it. This odor is due to the volatile secretion of specific glands situated in the genitalia; especially is this the case in certain members of the moschus family, also in the beaver, the civet-cat, etc. In man olfaction plays a similar role in creating sexual desire. Flowers may thus be conducive to it. Richelieu lived in an atmosphere of fragrance and perfume, in order to excite his dormant sexual functions. In the Orient pleasant odors are esteemed for their relation to the sexual system; the harem of the sultan is constantly filled with the scent of roses. The perspiration of females may frequently excite eroticism in the male. The odor of musk is said to be conducive to sexual excitement, as certain libertines are in the habit of using this perfume quite freely. An exclusive sedentary and luxurious life, tropical regions, warm beds and apparel, highly seasoned dishes, etc., are apt to cause sexual

excitement. Gluteal stimulation does the same; thus we observe in boys who have been subjected to spanking, the occurrence of erections and even ejaculation, which, when repeated, may lead to the vicious habit of onanism. Erection, ejaculation, and orgasm may also be the result of flagellation in general. There are regions on the cutaneous surface which are particularly prone to create eroticism, and are therefore termed "erogenous zones;" this is especially the case in women, in whom we find those zones more pronounced in the mammæ, the palm of the hand, and the integument of the cervical vertebræ. In the male the only erogenous zone is the glans penis, its adnexa, and the adjacent integument. Pathologically, however, the anus may assume eroticism and become an "erogenous area."

To recapitulate: The psychic-physiological process comprehended in the idea of sexual instinct comprises (1) conceptions originated centrally or peripherally, and (2) the pleasurable feelings coinciding with them. The latter establishes a longing for sexual satisfaction; this desire grows stronger according to the intensity of cerebral stimulation, induced by appropriate conceptions and the activity of the imagination. Reflex excitation of the center of erection intensifies the lustful sensations, which are accompanied by a turgescence of the corpora cavernosa and contraction

of the bulbocavernosus muscle. The hyperemia becomes effaced only after successful coitus; on completion of the act orgasm and ejaculation of semen occurs, relaxation of the bulb ensues, and the circulation of the parts flows unobstructedly in its proper channels. If copulation cannot be accomplished, then inhibitory conceptions arise, overcome the sexual longing, and prevent the sexual act. Inhibitory ideas in the civilized man are necessary and distinctive. Moral freedom is given to individuals, and the decision, whether under certain circumstances excess or crime be committed or avoided, rests on the one hand upon the strength of the conceptions and the accompanying lustful sensations, and on the other hand upon the power of inhibitory influences. Exciting and inhibiting powers may be increased or weakened by various factors, three of which play an important part, viz., Vulcan, Bacchus, and Venus.

In connection with the foregoing, a few words about the physiology of the act of cohabitation proper may enhance the lucidity of the subject more fully. A proper performance of this act demands sufficient erection, without which coitus is impossible. The phenomena accompanying the sexual act are as follows: turgescence of the genital apparatus, injection of the conjunctivæ, a temporary exophthalmia, dilatation of the pupil, and

palpitation of the heart. All these manifestations are due to a stimulation of the vasomotor nervous system. The act is accompanied by lustful sensations, which, in their turn, coincide with the passage of spermatic fluid through the ejaculatory ducts into the prostatic urethra, brought about by sensory stimulation of the sexualia, which is transformed into a reflex motor impulse. The pleasurable feelings occur earlier in the male than in the female; they grow rapidly in intensity, until the moment of the entrance of ejaculation, reaching their acme in the instant of free emission, and vanish promptly after it.

The most significant event during coitus is ejaculation. This is regulated by a special center, situated at the site of the fourth lumbar vertebra. It is termed the "genitospinal center," and is a reflex center. Excitation of this is followed by seminal emission from the vesiculæ seminales into the urethra. Stimulation of this center proceeds from the glans penis and the adjacent structure; when a sufficient quantity of seminal fluid is collected plus the ever-increasing lustful perceptions, then the center begins to functionate. The reflex motor tract of the "genitospinal center" resides in the fourth and fifth lumbar nerves. Ejaculation consists of a spasmodic contraction of the bulbocavernosus muscle, which forces out the spermatic fluid. Lack of ejaculatory activity is due to cortical influences, as emotions in general, volitional

intervention, want of desire during copulation, etc. After the completion of the actus sexualis, desire and erection cease, and the psychic sexual excitement gives place to a comfortable feeling of lassitude and *bien être*.

CHAPTER XI.

THE PERVERSIONS OF THE SEXUAL INSTINCT.

The subject of "sexual perversions" embraces the following maladies: (1) Erotomania; (2) satyriasis; (3) urnings.

Erotomania.—This form of sexual perversity is a species of insanity, which is characterized by the continuous existence of erotic desires, without the power to accomplish same, or—to put it more tersely—without the wish for its ultimate satisfaction. The literature upon this subject is fragmentary, and the little available gives us no clue as to the exact origin of this malady. It is regarded by some as a symptom of diseases involving the central nervous system, and has been known to occur as a frequent, if not constant, concomitant phenomenon in imbecility, idiocy, and the general paresis of the insane. Others attribute it to lesions invading the olfactory lobe of the encephalon. Professor Keyes quotes Grimaud le Caux as follows: "In a case of a patient so afflicted, who, when asked what he would do if put to bed with a female, replied that he 'would go to sleep.'"

The treatment of this form of sexual morbidity is a subject of much controversy, and has so far proved very unsatisfactory. As erotomania is not a disease of the genitalia *per se*, little, if anything, can be hoped to be accomplished by the aid of

therapy. Professor Krafft-Ebing recommends hypnotic suggestion as the *ratio ultimo*.

Satyriasis.—Satyriasis is a constant sexual desire with erection. It is an erotic delirium, or rather a condition of mental excitement, in which an abnormal intense sexual impulse is prominent. This malady is a phase of a general psychosis, occurring in mania and hallucinatory insanity. It is associated with demonstrable lesions of the cerebrum, especially in connection with tumors of the pons Varolii.

The essential element in this disease is a psychological hypersensibility, centralizing itself upon the sexual center. The imagination creates sexual images, which lead to erotic delirium. Even indifferent conceptions and ideas, not actually belonging to the realm of sexuality, may excite lustful sensations. The genitalia are in a state of constant turgescence. An individual affected by this form of morbid sexuality seeks to satisfy his desire at any cost, irrespective and regardless of any obstacle and fearing no consequences. He may thus become a serious menace to the female sex and a danger to the community. Not always able, however, to secure female individuals, he resorts to onanism, nay, even sodomy. At the mere sight of a woman he is excited sexually, and satisfies himself by resorting to masturbation. An interesting and illustrative case is cited by Professor

Acton of an old man who was extremely satyriatic, so much so that he would masturbate in the presence of ladies.

Satyriasis is not a very frequent malady. It may occur during senility. Continence, inducing repeated excitation of the sexual center as a result of psychic or peripheral stimuli, may favor the development of this condition. Pruritus scroti or ani is a good example of peripheral irritation; to the same category belongs oxyuris vermicularis. A certain predisposition on the part of the individual thus afflicted to this morbid sexual condition cannot be denied.

Satyriasis should not be confounded with priapism. In priapism from any cause there is, it is true, a constant erection of the organ, *unaccompanied, however, by any erotic desire.*

Satyriasis is an acute, abnormal, psycho-sexual state. Still there are cases which might be termed chronic ones. To the latter belong individuals, who have indulged in venery to excess, but more particularly those who have practiced masturbation. This has finally led to the acquirement of a so-called "sexual neurasthenia," with the simultaneous coexistence of an intense sexual desire. The imagination, as in the acute form, is in a state of hallucinatory excitement, and the mind filled with obscene images. The most sublime ideas, the most beautiful conceptions, the most artistic scenes and

poetic productions, are tinged with cynical and disgusting images and thoughts. All the desires, longings, reflections, and ambitions of such men solely revolve around the sexual sphere. They indulge in the vilest, grossest, and most bizarre of perversions of the sexual instinct.

TREATMENT.—If this psychosis reaches formidable dimensions and the individual cannot be restrained, the asylum would be the appropriate place, since such men are a constant source of danger and terror to women. The medicinal treatment of satyriasis is very unsatisfactory. The motor depressants, nerve sedatives, and antispasmodics may be tried. In one case, coming recently under our observation, we administered potassium bromid and chloral hydrate, in doses of ten and five grains respectively, every two hours, with happy results. Opium and its alkaloids have also been recommended, but should be administered with a great deal of circumspection and not for any length of time, as they tend to congest the brain. Camphor in moderate doses, musk, castor, valerian, and asafetida have all their advocates, but their utility is rather questionable. Circumcision has been lauded by some and should be given a trial. This operation creates a blunting of the peripheral nerve filaments toward external stimuli, and thus removes one source of abnormal sexual sensibility.

As some cases of satyriasis are undoubtedly due to the presence of tumors or gummata within the cranial cavity, potassium iodid and arsenic may be given with a view to disintegrate the neoplasm and enhance the absorption and elimination of the latter. Our belief is, that the waste products of metabolism, through the fault of improper elimination, collect around the perivascular structures of the intracranial capillary system, and by virtue of the pressure they exert produce the phenomenon of satyriasis. In short, we attribute it to a uricacidemia, and in view of this theory recommend the various solvents used in this disorder of metabolism, as the salts of lithium—preferably the benzoate and salicylate—potassium, and sodium, in combination with colchicum. Colchicine salicylate and the new uric acid solvent, aspirin, may each be tried in their turn. Professor Krafft-Ebing practices hypnotic suggestion with this class of patients and advances a warm plea for its use in this form of mental alienation. In spite of all our efforts this psychosis baffles our ingenuity, and a complete cure will never be effected.

Urnings.—This sexual psychosis, which is also known by the name of tribadism or Lesbian love, is the morbid inclination of a man sexually toward another man, rather than toward the opposite sex. Although occurring with greater prevalence in the male, it may be also encountered with frequency

in the female sex; in the latter it receives the name of Lesbian love. It is merely a subvariety of "urnings." The morbid phenomenon of urnings is not only of clinical but also of anthropological value. "The majority of male or female urnings do not act in obedience to an innate impulse, but they are developed under conditions analogous to those which produce the urning by cultivation" (Caspar).

This perversity has been frequently observed in penal institutions for either of the sexes. The inmates of these institutions not infrequently acquire the habit of manusturbation, which they mutually practice upon each other. But manual gratification is not the sole purpose of those "forbidden friendships;" the imagination, running riot and deprived of all psychic balance and logic deductions, learns to regard a member of the same sex as one belonging to the opposite sex. Involuntarily and retrogression of the mental equilibrium ensues, reaching such a degree, that those individuals fancy they possess all the psychic phases of love, as jealousy and passion, which could scarcely be surpassed by persons of the opposite sex. The smile of one of those prisoners to another will create the most violent outbreaks of jealousy, anger, and even rage on the part of his or her friend, as the case may be. Parent-Duchatelet offers the following interesting assertions in regard to Les-

bian love: "The disgusting and perverse acts which men perform on prostitutes are responsible for driving those unfortunates to tribadism. Thus, prostitutes of great sensibility, who are unsatisfied with the feigned intercourse of impotent and perverse men, are driven to indulge in this form of sexual perversity." The same author cites a case of a prostitute who, while intoxicated, forced another woman to Lesbian love. Taxil reports similar cases.

Mantegazza finds that tribadism has the significance of a vice, brought about by an unsatisfied sexual hyperesthesia. If opportunity favors the cultivation of this perversity, it may lead to an acquired contrary sexual instinct, with repugnance and abhorrence for sexual intercourse with the opposite sex. No doubt a certain hereditary tendency, a predisposition toward this as well as toward the other forms of sexual perversions, is believed to exist in those unfortunate individuals.

Krafft-Ebing relates a case of urningism, in which the lover was as sentimental in her tone and general conduct as is usually the case between lovers of the opposite sex; separation broke the heart of the one abandoned; jealousy ultimately led to a bloody revenge.

Mantegazza relates the following cases of congenitally perverted sexual instinct: A woman was brought before a London court dressed as a man,

and who had been married to three different women. Her sex was finally discovered, and she was sent to an asylum. Two women lived together as man and wife for about thirty years. On her death-bed the pseudo-husband confessed her secret to the bystanders.

Caffignon maintains that tribadism, which he calls "sapphism," is met more frequently among females of the aristocracy and prostitutes; he claims that this vice has of late come into fashion. His reasons for the acquirement of this perversity are: the reading of obscene novels; an exclusive association and companionship with members of the same sex; female boarding-schools; female or male penal institutions; the sleeping of male or female domestics together in the same bed, etc. The same author makes no distinction between the congenital and acquired forms, admitting, however, that they are the result of certain pathologic states of the cerebral cortex.

No matter how shocking, sad, and disgusting this form of sexual morbidity may seem to the reader, it nevertheless merits description, and demands profound study and ardent and zealous research for its amelioration, abatement, and eradication, and the adoption of measures for its prophylaxis.

CHAPTER XII.

PRIAPISM.

This term denotes more or less continuous erections without the accompanying venereal desire. Intercourse may take place and even ejaculations are possible in cases of priapism.

ETIOLOGY.—Traumatism of the spinal cord, especially of the cerebellum, have long been known to produce priapism. Hemorrhage in the cerebellum and pons Varolii will originate vigorous erections of the penis. Death by hanging is often attended by partial erections. In certain diseases of the cord, productive of paraplegia, erections are often absent; when the paralysis improves, they return. Injuries to the spine are followed by the same phenomenon. Certain other diseases of the cord, however, are notably accompanied by priapism; the latter disappearing when resolution sets in. Sudden and severe blows to the sacral region are conducive to priapism. In such cases it may be so excessive and intense as to cause retention. After the results of the injury and the pain attending it pass off, the erections ultimately vanish.

Absence of ejaculatory power is the general rule, although it may be present in some cases.

Large doses of cantharides will produce erections without desire. Prolonged mental activity, worry, etc., are capable of reducing the tone of

the nervous system, thereby inaugurating erections. Urethritis, the passage of calculi and catheterization have been known to cause priapism. Prostatism, neuralgia of the vesicle neck and neurotic prostatic affections are not very infrequently attended by this malady. Many writers have noted that leukocythemia is an efficient cause of this affection. Extravasation of the blood in the corpora cavernosa, circulatory impediment in the capillary vessels of the organ, formation of thrombi within the lumen of a vessel, irritability of the nervi-correctores and other causes are capable of favoring the entrance of this morbidity.

Priapism in children is often due to vesical calculi, too tight and elongated a prepuce, oxyuris vermicularis and inguino-scrotal intertrigo.

TREATMENT.—The treatment is merely symptomatic. Any detectable causes should be removed. A good hygiene must be enforced. Beyond this no special treatment can be recommended.

Counter-irritation of the lumbar and sacral regions may be tried. The India rubber seton at the nucha, as suggested by some authorities, is a painful, useless and harmful procedure, and should be discarded. Electricity has been found quite efficacious in many cases. Ergot and strychnin have their advocates; their utility is rather doubtful, for they may actually produce the identical condition for the amelioration of which they are in-

tended. Potassium bromid in moderate doses is an effectual remedy, notably in cantharidal erections, and the priapism of idiopathic origin. Potassium iodid has been used with success. The administration of hyoscyamus and stramonium has of late been attended by happy results. Strontium bromid has its advocates, who regard it as an efficient and powerful remedy.

CHAPTER XIII.

QUANTITATIVE AND QUALITATIVE ANOMALIES OF THE SPERMATIC FLUID.

The physiology of the seminal fluid has been the subject of many a learned dissertation and treatise. A great deal has been written of the motility of the spermatozoon, its penetrating and vibrillatory property, its longevity upon the total deprivation of suitable nutritive media, its revival after a prolonged period of dormancy, etc., etc.

These topics are no doubt of interest to the histologist, but of little value to the practitioner and student. The latter takes active cognizance only of pathologic states or functional disturbances of spermatism. Hence this chapter will be limited to a description of the abnormalities—both quantitative and qualitative—of the seminal fluid, together with the treatment of the same.

These anomalies comprise the following five morbid states: (1) Azoospermatism; (2) cyanospermatism; (3) aspermatism; (4) pollutions, nocturnal and diurnal; (5) spermatorrhea.

AZOOSPERMATISM.

This term denotes an absence of spermatozoa in the seminal fluid.

ETIOLOGY.—The theories advanced as regards its causation are questionable. It has been asserted, that azoöspermatism may follow double

gonorrheal epididymitis. Atrophy of the testicular parenchyma from any cause may give rise to a watery, transparent and less tenacious state of the seminal fluid, with a lack or total absence of spermatic elements. Suppurative seminal vesiculitis will destroy the zoa and render the seminal fluid inactive. It is obvious from the foregoing, that individuals suffering from this malady become also the victims of sterility. Orthorhombic, acicular, crystalline elements have been detected in the spermatic fluid, and have been attributed to retrograde metamorphosis of the spermatic elements by Professor Boettcher. It is claimed that blows to the vertex of the skull has been followed by this peculiar malady.

TREATMENT.—The treatment of this condition is very unsatisfactory. It should be directed towards the removal of the causative factor. This is not always possible, hence symptomatic medication is next in order. Such agents, which are known to increase nervous energy and bodily vigor should be employed. This implies the benefits derived from a judicious diet, good hygiene, outdoor exercise, sea-bathing, etc. Such a régime may advantageously be aided by the administration of bitter tonics, mineral acids, phosphorus, arsenic, cod-liver oil, etc., or by the various other means at our disposal. Organotherapy, so highly lauded by Brown-Sequard, may be tried, preferably the

glycerinated extract of the bovine testicle, in doses of from 3 to 5 grains thrice daily. At all events, it is rather doubtful whether a cure could ever be effected.

CYANOSPERMATISM.

Cynospermatism or "Blue Sperm" is a very rare malady. It occasionally accompanies spermatorrhea. Guelliot terms it "Spermatorrhee avec Spermatorrhea. Guelliot terms it "Spermatorrhee avec Cyanospermia," and reports several cases of this singular affection. Professor Ultzmann describes this abnormality somewhat in detail. This disease is very little known, and the causes underlying it are obscure. The blue color of the seminal fluid has been attributed to the presence of indican. The same coloring principle has also been detected in the urine of patients suffering from this malady; hence, we are inclined to presume that in reality we have to deal here with a case of indicanuria, imparting its cyanism to the spermatic fluid.

Some physiologists assert that indican is but an oxidized biliverdin; that in certain functional aberrations and pathologic conditions of the liver the bile, with its coloring matter, *bilirubrin* and *biliverdin* is reabsorbed; the former remains unchanged, while the latter, partially converted, undergoes oxidation and becomes indican. The greater bulk of it, however, is unaltered and escapes with the urine as "uro-verdo-bilin." Should

the latter be in superabundance, the excess necessarily undergoes complete oxidation—as it has been remarked above—and becomes converted into indican, thus coloring the urine blue and giving rise to the condition known as indicanuria. In fact, not only the urine, but also the various other secretions and excretions,—as the saliva, lachrymal secretion, the perspiration, etc.,—may attain a distinctly blue tinge. When occurring in the sweat, it gives rise to cyanodrosis and constitutes a form of chromodosis. The above explanation is equally applicable to cases of cyanospermatisms.

Benign or malignant tumors of the pancreas are known to be followed by indicanuria, an instance of great significance in connection with this subject.

THE TREATMENT consists in the removal of the etiologic factor. Hepatic stimulants and cholagogues have been recommended with a view to prevent absorption of biliary principles. Leptandrin in small doses is used by French physicians. Podophyllin may be tried with the same view in mind. If this disease is due to involvement of the pancreas, the extract of the latter, especially the amylolytic principle, diastase, may be administered.

ASPERMATISM.

Aspermatisms is a very rare condition in which—independent of the presence of a moderate sexual

desire and efficient erections—seminal emission does not take place. In short, this term signifies a total absence of seminal emissions with the presence, however, of potent, physical possibilities. Professor Ultzmann relates a typical case, in which the patient was apparently robust and vigorous, capable of repeated copulation, but unable to excite an orgasm and have a seminal ejaculation. The patient confessed to experiencing lustful dreams accompanied by an orgasm; upon awakening the presence of a small quantity of spermatic fluid could be detected upon the night-gown. A sound introduced into the prostatic urethra proved the latter to be actually insensitive, while the anterior portion of the canal had the usual sensitiveness.

ETIOLOGY.—The only plausible theory advanced by Roubaud to account for this peculiar malady is, that at the epoch of emission, the ejaculatory ducts are thrown into tonic spasms and prevent the entrance of the semen into the sinus prostaticus. We have thus to deal with a neurosis, of the type of an exaggerated motor excitability. Professor Keyes discards this theory, acknowledging, however, the neurotic origin of this affection, but attributing it rather to motor—depressing influences. We can do no better than to quote him verbatim. “There is no pleasurable sensation, no call for secretion of prostatic mucous or for a supply of spermatic

fluid. There is an anesthesia of the prostatic sinus, and although the power of having an orgasm and an ejaculation remains, as proved by dreams, yet there is some connecting link missing in the chain, which transforms friction of the glans into pleasure at the prostate, and finally into secretion in the testicle."

TREATMENT.—To follow Roubaud's theory would mean to resort to the exhibition of antispasmodics. He advises the administration of motor depressants, as chloral, potassium bromid, hyoscyamus, etc., he also recommends epispastics to the perineum, followed by the application of morphin to the abraded, ruptured area.

On the other hand, should we give prominence to Professor Keyes' theory, we would then be inclined to administer nerve tonics, as strychnin, phosphorus, cod-liver oil, etc. The practitioner will, therefore, have to choose between these two extremes, and the one which will benefit the patient the most should be regarded as the remedy *par excellence*. To speak with a contemporary writer on the subject, we would say: "No rational or effective treatment has been devised."

DIURNAL AND NOCTURNAL POLLUTIONS.

Either of these terms denotes involuntary emissions of the spermatic fluid, attended by an orgasm.

These pollutions may occur during waking hours or sleep.

DIURNAL POLLUTIONS.

In persons of a hyper-impressionable temperament, as also in those suffering from prostatic irritability, produced by excess in venery, sexual concepts of the most trivial nature, even a slight touch upon the glans penis suffice to effect an ejaculation. Not only these, but divers other causes, quite remote from the seat of the peripheral or central impressions may excite an orgasm with an accompanying seminal emission. Thus Lallemand relates the case of a man, who could induce ejaculations at will by striking his head with his hand. Pollutions have been known to follow injuries to the head and spine. Hedelhofer tells us of a man, who had an ejaculation while falling upon the sacrum. French scientists have observed the same phenomena during the Reign of Terror, in individuals decapitated by the guillotine.

TREATMENT.—Cold steel sounds should be passed twice or thrice weekly with or without astringent applications to the prostatic urethra. Emotional causes should be avoided. Marriage may prove an efficient remedy. In cases of a supersensitive glans penis, circumcision should be performed, with a view to create a blunting of the

peripheral nervous filaments supplying these parts.

NOCTURNAL POLLUTIONS.

This form is quite common. Patients usually awake with an ejaculation, which, in the majority of cases, coincides with an erotic dream. Lustful sensations are experienced during such erotic states. Nocturnal emissions are not always pathologic in character; when they occur in moderation during early adolescence, they are entirely natural and by no means a sign of disease. Married men away from their wives for several weeks suffer from erotic fancies, and between sleeping and waking have a seminal emission. This is quite physiologic, for the collection of semen distends the vesiculæ seminalis, and eventually leads to ejaculation and orgasm. Ungratified sexual appetite will excite eroticism, and the over-distended seminal vesicles will empty themselves spasmodically during sleep. Onanism,—creating a demand for rapid formation of semen to compensate the expenditure—will result in either nocturnal or diurnal emissions. Lascivious thoughts, impure associations, late meals, indulgence in liquors, irritability of the deep urethra, neuralgia of the vesicle neck, may effect the same.

TREATMENT.—Emissions occurring twice or thrice monthly may be totally disregarded, for they are physiologic in nature. When they become very

frequent, however, attempts should be made to correct the habit. Outdoor exercise, tiring physical work, and daily gymnastics are conducive to a sound and uninterrupted sleep. Cold baths or ablutions, and occasional cold douches, followed by general massage, are to be recommended. The patient should sleep upon his side, on a hard mattress, but lightly covered. Late meals are a source of excitability and should be interdicted. Purity of thought must be entertained. Among the remedial agents recommended for this malady, potassium bromid, camphor and lupulin rank first. Sometimes motor stimulants and tonics, as strychnin, phosphorus and the mineral acids seem to exert a favorable influence upon the cause of this abnormality. Gently passing a cold steel sound twice weekly, or the application of tannic acid to the prostatic urethra by the cupped sound have proven efficient measures. The use of instillations of silver nitrate solutions should be withheld as long as possible, and only resorted to in cases of marked obstinacy. Professor Keyes, however, ascribes to them an unrivaled efficacy. At any rate, only weak solutions should be employed and these with a great deal of circumspection. Electricity has in some cases done good. Verneuil reports a successful case treated by the timely intervention of an instrument, which caused a bell to ring whenever erections came on during sleep.

SPERMATORRHEA.

Spermatorrhea is the discharge of seminal fluid, containing spermatozoa, and occurring spontaneously without ejaculation and orgasm. It may occur during defecation, urination or to a slight extent at all times.

ETIOLOGY.—Excessive masturbation has been regarded as a potent factor in causing spermatorrhea.

It may be a sequel to some of the continued fevers, as typhoid, causing a local manifestation of a general systemic prostration. Dyspepsia, bodily and mental overwork, chronic diseases of a constitutional type, chronic inflammation of the floor of the prostatic sinus are prominent etiologic factors of the malady under consideration.

SYMPTOMS.—As mentioned above, the spermatic fluid may be seen to escape at each act of defecation or urination, particularly in the morning. It is of a bluish tinge, and when examined microscopically is found to contain spermatozoa. Sometimes no discharge of semen can be noticed at the meatus, still the urine harbors spermatozoa in considerable numbers. The subjective symptoms are manifold and inconsistent. A sense of weight in the perineum is complained of by the patient; deranged digestion and neurasthenic symptoms are of very frequent occurrence. Patients suffering from spermatorrhea are not necessarily impotent;

still their sexual appetite is morbid, excessive or feeble, at times unnatural and perverted, and at another time quite normal. Their sexual power is usually diminished. In some patients the general symptoms assume formidable aspects. The neurastheniacal manifestations become very aggravated. The patient loses his ambitions, becomes fanciful, even hypochondriacal, frets seriously about his malady, and gives up all hopes of a cure. The feet and hands are cold, the countenance pale and pinched and the circulation poor and sluggish. Finally the penis and testicles begin to shrivel and become very sensitive; the veins of the cord grow fuller and larger, and the loss of semen continues. Finally the latter becomes thinner and ceases to contain zoa, consisting merely of prostatic and Cowperian mucus. Ultimately the patient becomes incapable of erections—truly impotent.

PROGNOSIS.—Spermatorrhea does not kill. Many cases are positively incurable; some cases, however, get well of their own accord, without the intervention of remedial agents. When local and systemic treatment seems of no avail, the patient will do wise to accept his malady as he would a deformity, which others cannot see, and bestow as little thought upon it as possible.

TREATMENT.—All that has been said of the treatment in connection with pollutions, is equally applicable to the present subject. The hygienic

general and local measures outlined there should be given prompt attention in treating a case of spermatorrhea. The use of the cold steel sound lends tonicity to the parts. Ergot, preferably the fluid extract, acts well in atonic cases. Deep instillations of solutions of tannic acid or silver nitrate (the latter of a 2-per-cent strength) are highly lauded by some authorities. Personally, we abhor its use, for it destroys the prostatic mucosa and may substitute sterility for spermatorrhea, by obliterating the orifices of the ejaculatory ducts during the cicatrization process, which eventually follows cauterization.

CHAPTER XIV.

IMPOTENCE AND STERILITY.

IMPOTENCE.

Impotence is inability to accomplish the sexual act. It is a symptom rather than a disease. The term signifies that an individual cannot beget children, on account of an improper performance of the sexual act, no matter what the obstacle may be, irrespective of the presence or absence of spermatozoa. It must be differentiated from sterility, which means the incapacity to propagate the species on account of some defect in the spermatic fluid, no matter whether the individual can or cannot accomplish coitus properly. The two conditions may be associated in the same person. Let us illustrate this by the following examples: A patient had his testicles and penis removed for some malignancy of the parts. Such a person is therefore both sterile and impotent. On the other hand, his testicles only are extirpated, and although sterile, he may still be sufficiently potent to perform the sexual act. If, however, his penis *only* be amputated, then such an individual will have impotence pure and simple. It has been observed time and again, that after castration individuals retain sexual desire and vigor, being able to perform the sexual act creditably, and even have an orgasm and ejaculation of prostatic mucus. A

person with a double gonorrheal epididymitis will be perfectly potent. On the other hand, deformities of the penis, which give rise to an impediment during intercourse—with a normal quantity and quality of seminal fluid—will belong to the category of impotence. To the latter also belong extreme curvatures of the penis, epispadias and hypospadias, neoplasms, etc.

Impotence may be divided into true and false impotence.

True Impotence is of rare occurrence in the male. A person with ability to perform the sexual act is potent. To accomplish this act properly, four conditions are requisite: (1) Sufficient erections to allow intromission; (2) a mucoid fluid escaping from the urethra by ejaculation; (3) existence of venereal desire; (4) pleasurable sensation during the act.

The two latter are not so essential as the two former conditions. Without the last two, a person may be perfectly potent. For instance, cantharis may excite priapism and effect an ejaculation without influencing the desire in the least. Certain diseases of the spinal cord may abolish sexual desire or pleasure, still coitus may take place with perfect intromission and ejaculation, the patient being unconscious, however, at what moment it occurs.

ETIOLOGY.—Absence of the penis is the most

important causative factor of impotence, and still, if there be healthy testicles, the patient cannot be considered sterile. Conception under these conditions is said to have taken place by the deposition of semen at the vaginal orifice. In such cases sexual desire, orgasm and ejaculation were present, but an intromission proved impossible.

An extreme size of the penis may be a cause of impotence. Hypospadias, epispadias and curvatures of the organ may give rise to the same. Exostrophy of the bladder is another cause. Slight hypospadias does not necessarily involve impotence. A very short frenum preputii may at times act in a similar way. A large size of the prepuce, with a narrow and tight preputial orifice, may give rise to impotence, as well as neoplasms, both benign and malignant, encroaching upon the organ, elephantiasis, hydrocele and deformities of the penis of any description. A faulty position of the thighs due to ankylosis of the hip joint, abdominal plethora, etc.,—all these conditions are apt to create mechanical impotence. The above, however, does not imply sterility. Stricture of the urethra, faulty direction of the orifices of the ejaculatory ducts, by which the spermatic fluid during ejaculation flows backward to the bladder and escapes afterwards with the urine, are etiologic factors.

The peculiar malady termed aspermatism,—described in a previous chapter,—means impotence.

The individual is not sterile; coitus is possible minus ejaculation. Wanting, irregular and curved erections due to some inflammatory deposits in the sheath of the erectile structure of the penis, may be influential enough to entail impotence by preventing proper intromission. Eunuchs and individuals with testicular atrophy are both impotent and sterile, the latter as a usual sequence. Injuries to the head and spine, masturbation and excessive and prolonged spermatorrhea may be followed by impotence.

There are two varieties of true impotence, viz.: the *symptomatic* and the *idiopathic*. Physiological impotence is the general rule in childhood, beginning adolescence and old age and needs but a passing mention in connection with this subject. Symptomatic impotence usually disappears after removal of the underlying cause. The conditions enumerated heretofore are, correctly speaking, *symptomatic*, for instance, impotence due to obesity, stricture, deformities, tumors, etc. An *idiopathic* impotence is one in which no *demonstrable* lesions can be detected, in which the penis and the entire sexual tract is in an apparently good condition. To illustrate this, the following example may suffice: A patient suffers from double syphilitic epididymitis; he has no sexual desire, no erection; he has, therefore, impotence symptomatic of syphilis. Treatment is instituted; the testicles

return to their normal condition, desire and erections reappear and patient is well. Another patient is also the victim of impotence caused by syphilis; treatment is neglected or but partially and ineffectively carried out; the testicles go on to atrophy, and the patient passes from a condition of symptomatic into one of idiopathic or true impotence, which entails sterility as well.

In symptomatic impotence there is want of proper erections. The same domain embraces the so-called "intoxication-impotence," caused by hashish, camphor, iodine, arsenic, lead, the bromids, etc. Grief, fright, anxiety, mental work and worry may be included in this category. The acute infectious diseases, the exanthemata, the various cachexiæ and dyscrasiæ, gastric disorders, over-indulgence in food and drink, are efficient causes of symptomatic impotence. It is also encountered in connection with syphilitic involvement of the testicles without other symptoms of syphilis being present, and without any appreciable or apparent lesion of the testes. Varicocele and testicular neuralgia, excessive seminal pollutions, glycosuria and other devitalizing agencies are conducive to symptomatic impotence.

Impotence may come on insidiously, without any apparent cause—the *true idiopathic impotence* of some writers. We do not believe in this form of impotence, for, as a general rule, some cause is

underlying the malady. Thus, prolonged continence may give rise to it. A slight neuralgia of the prostate, producing no perceptible disturbances, may be overlooked, while in reality it proves to constitute the main exciting cause in so-called "idiopathic impotence."

TREATMENT.—Any underlying causes, conditions, dyscrasiæ, etc., must be removed or corrected. Without this, no cure is possible. An elaborate detailment of the treatment of each and every factor enumerated above is totally superfluous.

Impotence traceable to a neuralgic condition of the prostate or vesical neck, should receive its appropriate medication. The most efficient treatment for these conditions are instillations of a 2-per-cent solution of silver nitrate or a $\frac{1}{2}$ to 1-per-cent solution of protargol. Passing a cold sound twice weekly is in some cases very beneficial. Local applications of cold water, either in the form of ablutions or cold baths, are very serviceable. Good food, easily digestible and nutritious, judicious exercise, massage to the genitalia and lower lumbar vertebræ, fresh air and electricity are the means likely to prove effectual.

In cases of impotence due to prolonged continence, *marriage* is the only measure which will tend towards a complete cure, by regulating and compensating venereal desire and establishing

sound sexual hygiene. In cases of anemia, iron and manganese are to be recommended.

Various remedies have been suggested and many of them lauded. *Nux vomica*, phosphorus, camphor, musk, castor, valerian, damiana, arsenic and quinin have their advocates. A favorite formula of ours is as follows:

| | |
|---------------------------|---------|
| Ext. damianæ | gr. 100 |
| Phosphori | gr. 1 |
| Strychnin phosphatis | gr. 1½ |
| Ext. nux vomica..... | gr. 20 |

M. et fiant pil. No. C. Sig.: One after each meal.

The sweet spirit of nitre in conjunction with the tincture of the chlorid of iron has proven efficacious in our hands, both in clinical and private practice. It is an empiric formula, which we adopted after witnessing the good results obtained from it.

Counsel the patient to be deliberate in the sexual act, and to practice it in the early morning rather than in the evening; or even attempt another effort should the first prove futile. Atropin in doses of 1-100 of a grain may be administered with advantage. Its prolonged administration, however, should be guarded, lest vesical irritation ensue. Cantharis will no doubt excite priapism, but its secondary effects are depressing. The es-

sential oils of sabina, rue and tansy have received high praise. Ergot is supposed by many to be quite efficient in bringing about an improvement. In short, all aphrodisiacs at our command may be tried, but to our great regret, not unfrequently they fail to do their work and baffle our expectations. Circumcision may sometimes be necessary to diminish the sensitiveness of the glans penis, which is often over-acute. Camphor in small doses is a very active aphrodisiac, stimulating both erection and sexual desire. Lately, the chlorid of gold and sodium has received a great deal of attention and is spoken of highly. Silver nitrate in minute doses is said to exert a beneficial influence. The hypodermatic injections of 1-100 of a grain of strychnin nitrate in the perineal region is followed by immediate erections, which vanish, however, after the drug has exerted its action. It is no doubt efficient as a temporary measure. Hypnotic suggestions have been practiced of late and were followed by splendid results.

FALSE IMPOTENCE.

Not much can be said about this affection. While true impotence involves the treatment of some physical defect or demonstrable lesion, false impotence belongs to the psychic domain. False impotence demands treatment of the individual and not of the disease.

ETIOLOGY.—The cause of this malady is a psychic or moral one, usually a neurosis of some kind is the basal factor. Impotence only exists in the mind of the individual. The condition is really a specialized hypochondriasis. Sexual indifference plays an important role in producing this form of impotence. Indifference may be temporary and spontaneous or more or less prolonged. Sudden shock, grief, excessive joy, fright, repugnancy and want of affection for the woman with whom copulation is performed, all these conditions may create a passive form of impotence. The two last conditions may sometimes be overcome by the patient himself. The thought of another beloved person during coitus, may maintain erection and effect ejaculation. Erections may sometimes cease when present, if there is a sudden flooding of the vagina with warm mucus. Debauchery may produce temporary impotence. To the same province belongs the impotence following an acute attack of indigestion. Roubaud relates the case of a man who became impotent after winning a prize of thirty thousand francs in the lottery. This shows the psychic feature of the affection. Certain men are impotent towards blondes, but quite potent when attempting coitus with a brunette.

TREATMENT.—Moral and psychic impotence requires special attention on the part of the physician. A certain tact is necessary to acquire and

retain the confidence of the patient, which is the most necessary step to success.

The patient must be placed under the most favorable hygienic surroundings; all deviations from the normal should be met appropriately. The psychic conceptions of carnal desire must be awakened; the power of the organ must be enhanced. The former can best be accomplished by instituting favorable relations with the opposite sex, as opera, theater, balls, etc.; the latter by massage of the body in general and the genitalia in particular. Cold baths, ablutions and friction with cold water to the lower spine and the sexual apparatus are to be recommended. The flesh brush has also been recommended. Sea-bathing is an efficient means to enhance the tone of the body. A generous diet is imperative and adequate. All measures and medicinal agents recommended for true impotence, are equally applicable to the disorder under consideration. The mineral acids, strychnin, phosphorus, damiana, ergot, cantharis, iron, etc., may be tried. Phosphorus and cantharis in combination, beginning with a fair dose, say ten drops of the tincture of cantharidis and one-fortieth of a grain of phosphorus, to be taken three or four hours prior to coitus, are of service in some cases. The dose can be carefully increased. Cantharis produces priapism without desire, while phosphorus, damiana and camphor,

acting as they do upon the higher centers in the cortex directly, enhance sexual desire. Hot douches to the genitalia and the spine have been recommended; electricity acts excellently in some cases. Applications of sinapisms to the perineum will oftentimes recall erections.

There is another form of false impotence which remains yet to be described, the so-called "*nervous impotence*." The individuals affected with it are generally young and enjoy the best of health. They have generally masturbated more or less and suffer from nocturnal emissions. The evidence of virility are as a rule present and the sexual desire is frequently excessive. They awaken with an erection, or, what is more often the case, with an emission. They can provoke erection or even emission at will, but in the presence of a female, or when the desire for sexual intercourse manifests itself, the erections will not appear, and if they do, they lack the usual vigor and energy, and are apt to fail at any moment during coitus. In short, the individual can accomplish anything he wishes, but in the most critical moment he becomes devirilized and impotent.

ETIOLOGY.—This variety of impotence is due to an unnatural excitement of the sexual function. Continence and ungratified desire are very prominent causative factors. It may also be due to an intense over-excitement at the moment, and may

be accompanied by involuntary emissions during sleep, or by the occasional escape from the urethra of a semi-transparent, viscid fluid, furnished by the urethral and prostatic follicles. This discharge may occur at any time. Extreme mental worry and depression usually accompany this form of impotence.

Prof. Keyes, in his work on genito-urinary diseases, adequately pictures the above as follows: "Under the pressure of the imperious desire and after prolonged chastity, the sufferer has probably approached some incongruous female, and at the portals of success his erections have failed him. The mental depression following an experience of this sort is of the most exaggerated nature, the existence of impotence is considered as demonstrated beyond cavil and hope is obstinately banished from the horizon. The seminal fluid, it is assumed, is escaping in the urethral discharges and with it manhood and vitality. These ideas are intensified by the cunningly conceived advertisements of charlatans, with which the swarming newspapers abound, and the patient is still further enveloped by them in despair. False promises of a cure often tempt him to a trial and then failure relegates him to the physician sooner or later, more than ever deeply despondent. Such cases, which are unhappily not rare, require for their

management all the ability and tact that can be brought to bear upon them."

TREATMENT.—Acquire at first the confidence of the patient; instruct him in sexual physiology and hygiene and advise him to get married. Suggest to him that he attempt no coitus, that he be entirely frank and honest with his wife, and whereas such patients invariably awaken sooner or later with an erection, to accomplish coitus promptly without unnecessary delay, as a matter of imperative duty.

Local applications of tannic acid, with the cupped steel sound, the passage of the cold steel sound alone, or instillations of a few drops of a 2 per cent solution of silver nitrate—which is often of excellent service in cases of rapid ejaculations—may be tried in this form of impotence.

STERILITY.

All what has been intimated in connection with impotence is equally applicable to the present subject. But little remains to be said. Sterility is the inability to procreate offsprings on account of an imperfection of the seminal fluid. The latter may be altogether absent, or it may be lacking such constituents, which comprise the most important and essential element of the spermatic fluid. At times no quantitative alteration is to be detected, but when examined microscopically, we

find a total absence of spermatozoa, with a considerable increase of mucus. Sterility may be associated with impotence as well.

ETIOLOGY.—Eunuchs of harems are always sterile, but not necessarily impotent. Degeneration or destruction of the testicular parenchyma by disease, extirpation of the testes for the removal of malignant neoplasms, or voluntary castration, all these conditions entail sterility. Atrophy of the testicle from any cause—especially syphilis—will tend towards the establishment of sterility. Congenital coloboma of the testes, or their non-descent from the abdominal cavity, during intra-uterine life, will eventually lead to sterility. Under these circumstances the individual enjoys perfect potency. Obliteration of the canal of the epididymis, following a gonorrheal or syphilitic epididymitis, is a frequent, if not the most prolific cause of sterility.

Obliteration of the ejaculatory ducts or the vesiculæ seminales, following calculi or operations, cicatrices left behind by the cauterization of the prostatic urethra with strong solutions of silver nitrate, causing destruction or compression of the structure just mentioned, are conditions favoring the advent of sterility. Bilateral occlusion of the seminal ducts in any part of their course, will naturally result in sterility. Individuals suffering from sterility, due to the last mentioned

cause, are usually healthy, their testes intact and unaltered, their potency well preserved, their sexual desire, erections, orgasm and ejaculation apparently normal. But since the spermatozoa cannot reach the urethra via an occluded seminal duct, the ejaculated fluid will therefore be devoid of seminal elements, notwithstanding the presence of a sufficient quantity of prostatic mucus.

TREATMENT.—Unfortunately the treatment is very unsatisfactory. Removal of the cause is imperative, but this cannot always be creditably accomplished. The remedies suggested for impotence may be tried, but we do not think whether they will ever effect a cure, or even a partial improvement. If the patient's physique is below par, he must be placed under a good hygiene, with plenty of air and out-door exercise, a generous diet, seabathing, massage, electricity, etc. In short, anything which will enhance the tone of the economy should be resorted to. Iron, phosphorus, and the manganates or manganese in combination, have been recommended.

Organotherapy seems to be quite promising, according to the reports of a number of successful cases. The thyroid extract of the sheep, in 5-grain doses three or four times daily, may be administered. The cardiac action of a patient under thyroid medication should be carefully watched. The exhibition of thyroiodin, the active principle

of the thyroid gland, has been advised and highly lauded by some writers. A glycerinated extract of the bovine testicle, so warmly recommended by Brown-Sequard, is a remedy of questionable and doubtful utility. Still, if all our therapy fails us, it may be resorted to as the *ratio ultimo*.

CHAPTER XV.

MASTURBATION.

Masturbation or Onanism is the manual self-production of a sexual orgasm. Masturbation is really no malady, rather a symptom or manifestation of a weak and depraved will. It may, however, produce disease if it is carried to excess. Man is not the only one who practices this vice; the lower animals, as the ape, goat, turkey, etc., very often masturbate. In the human being it is observed in both sexes and at all ages.

It is a habit too often grafted in a boy by the bad example of his classmates or the instruction of his elders. Vesical calculi, accumulation of smegma in the preputial sac, inflammatory conditions of the bladder, urethral stricture, trauma to the genitals, ascarides and oxyuris vermicularis may lead children to handle themselves. This innocent palpation of the organs may evoke agreeable sensations which, when indulged in, may form an incentive to masturbation.

It is not the loss of spermatic fluid—for women and children have none to lose—which eventually leads to disastrous results, but the nervous shock attending often repeated orgasms. This succession of nervous shocks will encroach upon the equilibrium and stability of the neurotic energy, will shatter the vitality and nervous tone of an indi-

vidual, not only leading to debility and to asthenia of the physical economy, but also entailing upon the poor unfortunate a long chain of neuro- and psychopathic maladies, to be described more fully in connection with the symptomatology.

Sometimes manual gratification alone is not sufficient, and masturbators will resort to numerous devices wherewith to produce lustful sensations, and to excite an orgasm. The manifold foreign bodies found in the urethra and bladder attest the frequency with which the most incongruous and divers substances are employed for the exercise of the secret vice. Among other causes leading to this sexual morbidity, may be mentioned cerebral syphilis, blows to the head and spine, abuse of stimulants, irregular and self-indulgent habits, and, above all, an hereditary tendency manifesting itself in some variety of sexual psychopathy.

Masturbation may be practiced on all occasions, even in company, not only by the hand but also by friction against some prominent object. School boys often practice mutual masturbation. Usually, however, it is performed in bed, or at least in such places where the possibility of disturbance is excluded. Hence, "the frequency of its performance is in some cases very great and the effects of often repeated nervous shock much more pronounced." (Keyes.)

SYMPTOMS.—Boys practicing onanism grow capricious, thin, nervous and excitable. They suffer from insomnia, which aggravates the trouble not only by exhausting them, but also by favoring repeated performances of this vicious habit. They have a haggard, sallow look and a “hang-dog” expression. Their eyes are deep set. They shrink from a steady gaze and blush readily; they like to brood over things and are inclined towards a melancholy mood. They become careless, absent-minded, and of poor memory. Their hands and feet are cold and their countenance pale. They stoop as they walk, the chin resting upon the sternum. They are shy, unambitious, and lose the innocent frankness of boyhood.

The symptoms in the adult are similar to those in boys. Men who masturbate are poor specimens of manhood; they are cowardly, mean spirited, untrustworthy individuals. They lack self-esteem and become indifferent, suffer from hypochondriasis and from many other real or fancied ills. Varicocele and atrophy of the testicles have been observed by many clinicians, and we have several cases on record in which the above has followed masturbation. Idiocy and dementia—though rare sequelæ—have been known to supervene after excessive masturbation. Sometimes the intellect and memory begin to fail, epilepsy makes its appearance, the individual approaches nearer to the brute

and is found to masturbate so excessively and incessantly, that the question of constant observation or a rigid regimen in an asylum naturally suggests itself.

TREATMENT.—The prophylactic treatment is of vastly greater importance than the curative, which is not always possible and often very unsuccessful. Boys should be made to sleep by themselves; the threads of a close intimacy between boys of different ages should be severed. As soon as it is known to the parents or guardians, that a boy is masturbating, a close watch should be kept up.

The boy's morale should be elevated; he should be reasoned out of his folly, but in no wise try to terrify or frighten him of the evil consequences which might befall him, should not this habit be promptly stopped. Shame him, make a man out of him, talk to him honestly and openly, study him and sympathize with him. Treat him morally, but under no considerations wound his feelings.

In older boys, in those who have attained adolescence, and in grown up men, the advocacy of continence and absolute purity of thought should be promulgated. If this is impossible—continence may be a hard condition, to some harder than to others—the advisability of marriage is obvious.

Medicinal agents are of little value. The bromids tentatively administered, camphor, or a com-

bination of the two, in the form of camphor monabromate, may be tried. It is doubtful whether they are of any efficacy. Physical exercise in the open air to the extent of inducing bodily fatigue, cold ablutions and baths, sea-bathing, sleeping in a cool room upon a hard mattress, but lightly covered, are very useful hygienic measures. Regular meals, a sparingly seasoned, nutritious and easy-digestible diet should be enjoined. Early and light suppers and the avoidance of eating just before retiring should be strongly insisted upon. Not retiring until very sleepy and getting up immediately upon waking in the morning—all of these hygienic and dietetic regulations are undoubtedly powerful auxiliaries to eradicate the vicious habit. Above all, do not forget to enhance, to elevate the patient's morale. Lead him to introspection in which the *consciousness of his unmanliness* shall like a fiery "tekell" be engraved upon his heart, a constant sign of warning to his mind, and a taboo to his morality.

In cases where insomnia is a powerful factor, we find that sulfonal in five to ten grain doses is very efficient in inducing refreshing sleep. It should be given two hours before the usual hour of retiring, preferably in hot milk. As the appetite of such patients is as a rule very poor, their biliary secretion sluggish and their bowels inclined to be constipated, the bitter tonics with cascara before

meals is a very useful combination. In cases where anemia is a marked feature, complicating the habit, the triple phosphates of iron, quinin and strychnin may be administered with advantage.

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